

**Rock Islands Southern Lagoon  
Management Plan  
2012-2016**



**Koror State Government  
Republic of Palau**



## Foreword

The Rock Island Southern Lagoon is an extremely important area for Palau, supporting biodiversity, fisheries, tourism and cultural values. The area has been recognized as having outstanding global value, through the inscription as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage site. It is the vision of this Management Plan to maintain these abundant and diverse natural, cultural and historical resources, so they can continue to be used and enjoyed by the community, and so that these values remain strong into the future. The area is an internationally renowned tourist destination, and as such underpins the nation's economy. It is important that the people of Palau benefit from the revenue generated from such use of the area, and that all management is designed with the community in mind.

The Koror State Department of Conservation and Law Enforcement is responsible for the coordinated management of the Rock Islands Southern Lagoon, including enforcement and surveillance. Increasing resource uses and pressures within the area has led to the recognition of the need to implement more strategic and integrated management. In 2004, the first Management Plan for the Rock Islands Southern Lagoon (RISL) was created, designed to be used as a comprehensive framework for managing the RISL's resources.

This current Management Plan, effective between 2012 and 2016, is a revision of that original plan, and is intended to be used as a working document to guide all management activities within the RISL for the next five years. Lessons learned from the previous management plan were used to focus on the key priorities for the area, and to ensure that all management activities are Simple, Measureable, Achievable, Relevant and Time-bound (SMART) objectives that can be realistically implemented in a timely manner. This plan recognizes that long-term management must be strategic, and that key activities must be undertaken first. For instance, there is a need to build baseline scientific knowledge about the area in order to inform future management. The plan also focuses many actions on enhancing regulations and zones to guide management, which is a key foundation for all future management actions. The recent inscription as a World Heritage Site requires more rigorous management of the area, and places management efforts under international scrutiny.

The plan was developed with assistance from the Palau Conservation Society, and an appointed Executive Committee. The planning team also engaged in numerous consultations with key stakeholders and agencies involved in implementing management activities, to ensure input and support. The Koror State Department of Conservation and Law Enforcement will continue to work closely with the community and key partners to ensure community involvement and commitment, and the effective implementation of this Management Plan.

Sincerely,



Yositaka Adachi

Governor, Koror State Government

# Approval Page

**This plan has been reviewed and approved by the Rock Islands Southern Lagoon Management Plan Taskforce Executive Committee and the Governor of Koror State, Yositaka Adachi**

**July 2012**

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## List of Acronyms

AG	Attorney General
BAC	Bureau of Arts and Culture
BMR	Bureau of Marine Resources
BMPs	Best Management Practices
BNM	Belau National Museum
BPS	Bureau of Public Safety
BTA	Belau Tourism Authority
CIP	Capital Improvement Project
CRRF	Coral Reef Research Foundation
CPUE	Catch Per Unit Effort
EIA	Environmental Impact Assessment
EQPB	Environmental Quality Protection Board
FIA	Fisheries Impact Assessment
KSDSCA	Koror State Department of State and Cultural Affairs
KSDCLE	Koror State Department of Conservation and Law Enforcement
KSDPW	Koror State Department of Public Works
KSL	Koror State Legislature
KSPLA	Koror State Public Land Authority
MNRET	Ministry of Natural Resources, Environment and Tourism
MOA	Memorandum of Agreement
MPA	Marine Protected Area
OERC	Office of Environmental Response Co-ordination
PALARIS	Palau Automated Land and Resources Information System
PAN	Protected Areas Network
PCC-CRE	Palau Community College - Co-operative Research and Extension
PCS	Palau Conservation Society
PSFA	Palau Sports Fishing Association
PICRC	Palau International Coral Reef Center
PVA	Palau Visitors Authority
RISL	Rock Islands Southern Lagoon
TNC	The Nature Conservancy
UNESCO	United Nations Educational, Scientific, and Cultural Organization

# Chapter 1: Introduction

## Background to the Management Plan

The Rock Islands Southern Lagoon (RISL) of Koror State is an area of extreme importance to Palau, for its biological, cultural, historical and economic values. The area's exceptional value was recognized when it was inscribed on June 29, 2012, as a UNESCO World Heritage Site, for both natural and cultural criteria. The RISL is the first area in Palau to be awarded this prestigious recognition, and only one of four sites in the world that are inscribed as a mixed site.

The RISL is internationally known for its stunning beauty, both above and below the water. As a world-class dive destination, the area provides the foundation for Palau's tourism industry and in turn, the nation's economy. Commercial and subsistence fisheries in the area also contribute substantially to the nation's financial health, as well as providing an essential food source for the community.

However, the value of the RISL to Palau goes far beyond economics. The area is an integral part of Palau's cultural heritage, with prehistoric rock paintings, archaeological remains and a rich oral history. The area continues to be culturally important for its current use by locals visiting the area for recreation, fishing and gleaning. The RISL also contributes significantly to Palau's biodiversity and provides important habitat for the country's endemic and endangered species.

The proper management and maintenance of the area is therefore critical for the wellbeing of Palau's economy, culture and biodiversity. The Traditional Leaders of Koror and the Koror State Government have jurisdiction over the RISL Management Area. The Traditional Leaders have always taken responsibility for the RISL, governing with customary law and traditional management. However, the increasingly intensive and varied use of the area has created greater and more complex challenges for management, resulting in the Traditional Leaders requesting Koror State to work with them to improve management of the area. Since the 1960's, Koror State Government has passed numerous laws governing the RISL. In 1956, the Ngerukewid Islands Preserve, within the RISL, was established, making it the first formally protected area in Palau. In 1999 the entire RISL was designated as a managed conservation zone. In 2004, the Sixth Koror State Legislature passed a resolution to create the first integrated management plan for the conservation of the RISL's resources. An Executive Committee was appointed by the governor to oversee the development of the five year Management Plan, effective between 2004 and 2008.

This current five year plan is a revision of that management plan, and was developed by the Koror State Department of Conservation and Law enforcement, in conjunction with an appointed Executive Committee. Integral support and assistance for this review process was provided by The Nature Conservancy and Palau Conservation Society. Effective between 2012 and 2016, this plan aims to use the lessons learned from the previous plan to create a more feasible and achievable management framework. One of the key problems identified throughout the implementation of the old management plan was the need for key baseline data essential for informing management decisions. This management plan therefore aims to work

on collecting that data to better understand the current biological health of the RISL, and the key resource uses and pressures. The planning team also identified the need to include a component focusing on cultural values, to include specific management actions that were not indicated in the previous plan. There is also a focus on internal institutional capacity building of the Koror State Government to ensure that the increased management efforts required can be effectively met.

### Purpose of the Management Plan

The purpose of this management plan is to establish a comprehensive, coordinated management program for the Rock Islands Southern Lagoon for the next five years. The Management Plan covers all management activities within the RISL. The plan is designed to ensure the natural, economic, and cultural values of the RISL are effectively managed and balanced, for the continued sustainable use and enjoyment of the community. This plan, which is the second management plan for the RISL, is an important part of an on-going cycle of design, implementation and review, and should be viewed as a “working plan” rather than a static document. The plan is intended to provide a framework for collective decision-making by Koror State and stakeholders over the coming years. Acting within this framework and upon a continually growing base of shared knowledge and skills, Koror State Government can continue to improve and refine their management responses over time.

### Geographic Scope of the Management Plan

The Rock Islands Southern Lagoon covers all of Koror State’s waters, from its boundaries with Airai and Aimeliik States in the north, to Bailechesengel Point in the southwest and the boundary of Peleliu State in the south, and includes all waters from the traditional baselines to 12 nautical miles seaward, as described in the State Constitution (see Figure 1). The RISL Management Area covers approximately 1000 km<sup>2</sup>, and includes all land areas within these waters except for the northern Koror Islands that form the main Koror town area. The islands of Ngerekebesang, Ngerur and Ngemelachel, and any other small islets or islands joined by causeway or bridge are also considered to be part of the town area and are outside the RISL.

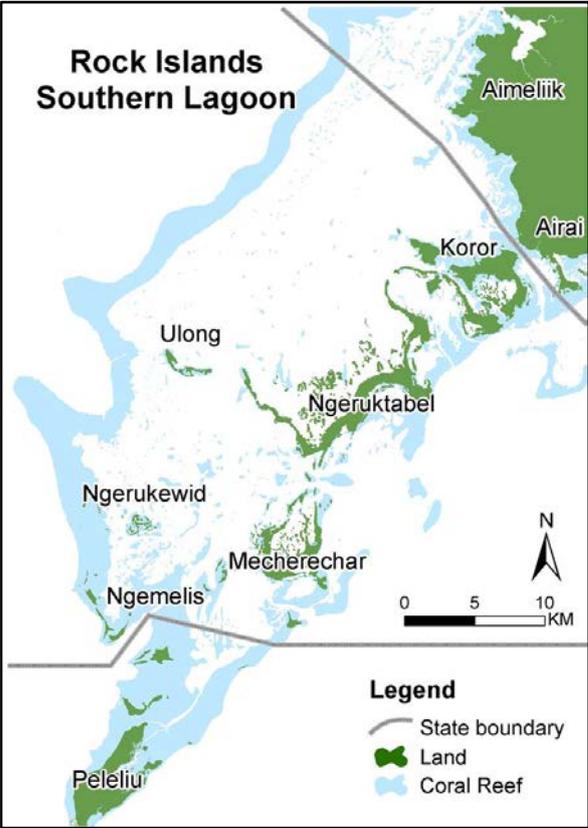


Figure 1. Map of the Rock Islands Southern Lagoon Management Area (all Koror State waters and land, excluding the main Koror town area and other urban areas).

## Implementation of the Management Plan

The Koror State Department of Conservation and Law Enforcement is responsible for the implementation of the Management Plan. Koror State will work closely with the Traditional Leaders of Koror, the community, key stakeholders, State and National Government departments, and national and international resource agencies to implement the plan. Specific actions will be implemented by the appropriate partnering organizations (see Chapter 3). The plan will be implemented immediately and be in effect for the next five years. It will be reviewed after two years to identify areas which are falling behind in their implementation, and assess the effectiveness of the Management Plan.

## Key Management Issues for the Rock Island Southern Lagoon

Whilst the RISL is currently in good health, there are increasing pressures on resources as Palau develops. The planning process identified four major management priorities for the area: biodiversity and natural systems; fisheries; cultural and historical values; and tourism, recreation and economic values. The key management issues for the RISL therefore centre on maintaining and enhancing the health of these different aspects, and addressing current and future threats.

Conservation targets identified through CAP meetings for the RISL include: coral reefs; seagrass ecosystems; beach strand ecosystems; forest ecosystems; mangrove ecosystems iconic species; invertebrates; birds; jellyfish (specific to Jellyfish Lake); and cultural and historical sites.

The main issues and threats affecting the natural biodiversity of the RISL include over-exploitation of resources, climate change, and invasive species. These issues have potential to negatively impact and considerably undermine the health of both ecosystems and species, including important endemic and endangered species. Specific threats for natural systems targets identified during the CAP process included: dredging, overharvesting, dynamite fishing, pollution (solid waste and waste water), coral bleaching, sea level rise, ship/boat grounding, divers impacts (coral trampling), hunting, and infrastructure development.

For fisheries, over-exploitation of resources has been and will continue to be a serious issue in the RISL, which is believed to have significantly reduced certain fish stocks. These important fish species will also be greatly impacted by any threats to natural ecosystems. Managers must work with fishermen to ensure that sustainable harvesting is practiced.



A healthy fish population in the barrier reef of the RISL. Photo by Jerker Tamelander.

It is important to recognize the cultural values of the area and issues affecting these values, which need more management attention. The many cultural sites in the RISL, including stone-work villages and rock-art, are in need of rehabilitation and maintenance work to protect and preserve them against threats, including environmental weathering. The work has been ongoing, but is considerable, and as such poses a significant management issue to make sure that all of these cultural sites have been addressed. Historical sites, such as WWII relics, also need to be managed and assessed. These historical relics include unexploded ordnance that is still present throughout the RISL, including wrecks used as dive sites, which poses safety issues. The CAP process identified the following threats to cultural and historical sites: pollution; lack of maintenance; lack of awareness; treasure hunters; loss of cultural value or importance (language, values, norms); lack of clear roles and responsibility regarding jurisdictional responsibility.

Tourism in the RISL, as the backbone of nation's economy, is essential to manage effectively to ensure long-term economic health for Palau. It is extremely important that tourism in the area is promoted internationally and is at a world class standard for visitors. New ventures, including cultural tours, need to be developed to continue strengthening the tourism industry. At the same time, it is also essential that tourism does not negatively impact on the area. For instance, the high visitation at Ongeim'l Tketau, Jellyfish Lake, is of concern. Tourism therefore needs to be strictly regulated and managed, and Koror State Government needs to work closely with the tourism industry to ensure compliance. Community access and recreational use of the RISL is also a priority, and it important to make sure that tourism use of the area does not detract from the enjoyment of locals. Other potentially uses of the area include boating, as a part of tourism and for other recreational uses. The increasing boating and water activities in the RISL has both safety and environmental issues, and must be managed accordingly.

In conjunction with tourism use of the area is the issue of development. Development was identified during the CAP process as one of the major threats to conservation targets. As a zoned conservation area, development must be kept to a minimum within the area, whilst still allowing for essential tourist and local recreational facilities. Impacts of development from surrounding urban areas must also be managed, to ensure that ecosystems are not polluted and degraded.

All of the four major management aspects are necessarily linked and interactive, and therefore management needs to be integrative. Fisheries and tourism necessary depend upon healthy natural resources. In turn, the health of natural ecosystems is greatly impacted upon by the exploitation of resources, and thus fisheries and tourism must be sustainably managed. However, the use of the RISL by different stakeholders may be conflicting. Koror State Government must therefore work to make sure that all values are balanced. This is one of the key management difficulties.

## **Chapter 2: Management Vision, Goals, Objectives and Actions**

### **Management Vision**

To maintain the spectacular beauty and the abundant and diverse natural, cultural and historical resources of the Rock Islands Southern Lagoon, so that it can continue to be used and enjoyed by current and future generations of the people of Koror and Palau and remain a central part of our culture and lifestyle, and for the current and future enjoyment of the world.

### **Overarching Management Goal**

To provide for the sustainable use and conservation of the natural, cultural and historical resources of the Rock Island Southern Lagoon.

### **Key Management Goals**

#### **Goal 1: Biodiversity/ Natural System Health Enhancement**

Maintain the full range and richness of biological diversity, species habitats, ecological processes and high environmental quality of the RISL.

#### **Goal 2: Subsistence and Commercial Fisheries Improvement**

Subsistence and commercial fishing and other extractive activities in the RISL are environmentally and economically sustainable and culturally compatible, and provide continued benefits to the people of Koror and Palau.

#### **Goal 3: Cultural and Historical Preservation**

Nurture and sustain Palauan culture by preserving and maintaining the landscapes, artifacts and oral traditions associated with the stonework village sites in the RISL, and preserve Koror's historical sites.

#### **Goal 4: Tourism, Recreation, and Economic Enhancement**

High quality tourism and recreational activities in the RISL are environmentally and economically sustainable, culturally compatible and provide benefits to the people of Koror and Palau.

#### **Goal 5: Koror State Government Institutional Capacity Development**

Improve the institutional capacity of Koror State Government to effectively manage the RISL, focusing on strengthening regulatory frameworks, enforcement and surveillance, and building relationships and communication with key organizations and stakeholders relevant to the implementation of activities.

# Key Management Objectives

## Goal 1: Biodiversity/Natural System Health Enhancement

- ❖ Maintain or increase the health of essential fish habitats and fish species.
  - ❖ By 2015 surveys of valuable food fish in the RISL are conducted.
  - ❖ By 2016 management in the RISL is informed by data, such as the findings and recommendations of the fish surveys and monitoring of existing Marine Protected Areas (MPAs).
- ❖ By 2016 biological baseline data within the RISL has been developed, focusing on key terrestrial and marine species.
- ❖ By 2015 the effectiveness of protected areas in the RISL has been strengthened, by creating new Conservation Areas, and promoting the importance of protected areas to the community.
- ❖ By 2016 strategies have been developed to enhance the resilience of ecosystems in the RISL to climate change.
- ❖ By 2016 strategies and plans have been developed and implemented to prevent the establishment of new marine or terrestrial invasive species, and reduce the distribution and area covered by existing invasive species in the RISL.

## Goal 2: Subsistence and Commercial Fisheries Improvement

- Ensure fisheries are sustainable by decreasing overall fishing pressure in the RISL.
  - ❖ By 2016 Koror State Government has developed the institutional capacity to manage and regulate fisheries.
  - ❖ By 2016 subsistence and commercial fishing and other extractive activities in the RISL are guided by zones and associated regulations.
- ❖ By 2016 sustainable harvest guidelines for key species are developed.
- ❖ By 2016 aquaculture within the RISL is in accordance with Koror State Government aquaculture zones and regulations.

## Goal 3: Cultural and Historical Preservation

- Strengthen and enhance Koror State's traditional and cultural connection to the RISL's stone work villages, and preserve historic sites within the RISL.
- ❖ By 2014 Koror State Government has developed a program for protecting and rehabilitating cultural sites and features in the RISL, including the creation of a State registry, and the development of protocols and plans.
- ❖ By 2016 at least three village sites that are in critical need of care or rehabilitation have been identified and a plan for their rehabilitation developed.
- ❖ By 2015 50% of the traditional cheldebechel of Koror have access to information on the importance of the RISL to Koror's cultural heritage, and value the RISL's cultural sites.
- ❖ By 2014 Koror State Government has developed a program for protecting and preserving historical relics/ sites in the RISL (i.e. WWII relics), including the creation of a State registry, and the development of protocols and plans.
- ❖ By 2016, a section depicting RISL and Koror State cultural traditions and historic era is established at the Belau National Museum.

#### **Goal 4: Tourism, Recreation, and Economic Enhancement**

- Enhance tourism guidelines and regulations and ensure that tour operators and tour guides are in compliance with these.
  - ❖ By 2014 all tour operators are familiar with and are implementing tours according to the tour guide certification program.
- ❖ By 2016 tour operation guidelines and plans to ensure sustainable and low impact tourism have been developed.
- Strengthen and enhance the cultural aspect of Koror State's RISL visitor experience.
  - ❖ By 2015 the cultural heritage of at least three tourism sites have been identified and developed as part of the RISL visitor experience.
  - ❖ By 2014 cultural heritage training for tour guides has been developed and incorporated into tour guide training.
  - ❖ By 2016 at least 25% of tour operators in the RISL have integrated traditional cultural resource tours into their tour programs.
- Promote the historical aspect of Koror State's RISL visitor experience.
  - ❖ By 2015, guidelines and training for tour operators have been developed concerning historical sites, and incorporated into tour guide training.
- ❖ Strengthen and enhance the natural aspect of the RISL visitor experience.
  - ❖ By 2016 new nature-based tourism ventures are under development, particularly regarding the opportunity to build a bird-watching tourist market.
- Maintain local resident access to the RISL and enhance the local Palauan visitor experience/ recreational use.
  - ❖ By 2016 facilities at key local only sites have been constructed and/or improved.
  - ❖ By 2016 develop best management practices (BMPs) for local site use.
- ❖ By 2016, develop and enhance regulations and monitoring to ensure that development in the RISL is strictly controlled, while allowing necessary infrastructure to support better management of the area.
- ❖ By 2016 develop/enhance regulations and monitoring for development in and around Koror to minimize degradation and pollution impacts in the RISL.
- ❖ By 2016 regulations and guidelines have been developed to ensure boating safety and minimize the impact of boating activities in RISL waters, including the mooring/anchoring of vessels.

#### **Goal 5: Koror State Government Institutional Capacity Development**

- ❖ By 2016, regulatory and legislative frameworks for management in the RISL have been reviewed and, where appropriate, improved.
- ❖ By 2016 the capacity of Koror State Government to effectively carry out enforcement and surveillance activities in the RISL has been enhanced.
- ❖ By 2016, Koror State Government has worked to strengthen relationships and communication with organizations involved in the implementation of activities, and with key stakeholders/ resource users.
- ❖ By 2016 establish links with other management programs at a national, regional and international level to better manage the RISL.

## Management Actions

### Goal 1: Biodiversity/ Natural System Health Enhancement

#### Description of Management Issue

The RISL contains diverse marine and terrestrial ecosystems, including coral reefs, lagoons, marine lakes, the pelagic ocean, seagrass beds, mangroves, limestone forest and strand forest (see Chapter 5). These ecosystems are important habitat for species, including a number of Palauan endemics. The RISL is critically important for several endangered species, including green turtles, hawksbill turtles, dugongs, and the Micronesian megapode. The marine ecosystems also support economically important food fish. The unique and diverse natural values of the RISL were recognized with the inscription as a UNESCO World Heritage Area.

Marine and terrestrial ecosystems are generally considered to be in good condition, but are vulnerable to over-exploitation of resources, climate change, disturbance, and invasive plants and animals.



Micronesian megapode. Photo by Mandy Etpison.



The endemic Rur, *Bikkia palauensis*, found within the Rock Islands. Photo by Tarita Holm.

It is believed that fishing pressure in the RISL has reduced the abundance and health of certain fish populations. Not only is the long-term viability of these species a management concern, but the reduction of key fish species can negatively impact the whole ecosystem. For instance, lowered numbers of herbivorous fish can result in an increase in algae on coral reefs, affecting their health and recruitment. Management actions include conducting surveys of fish populations and habitats, and using this data to inform strategies to aid recovery of observed problems, and protect critical areas.

Climate change is likely to have a significant impact on the RISL's natural resources, particularly the coral reefs. The devastating effects of elevated sea temperatures were seen in the RISL in 1998, when the El Nino-Southern Oscillation event caused significant coral bleaching throughout Palau. The projected increase in sea temperatures is expected to be a major issue for the area, triggering frequent and severe bleaching events. Increasing sea levels and the associated impacts of shoreline erosion will also be an increasing issue. Management actions regarding these issues focus on building knowledge and strategies to enhance the resilience of ecosystems in the RISL to climate change threats, including continuing research into key climatic stresses, and developing action plans to reduce non-climatic stresses which weaken ecosystem resilience.

Introduced and invasive species pose an imminent threat to the biological and economic value of the RISL's resources. Although relatively few species have become established in the area, invasive species have the potential to alter the natural structure and balance of the marine and terrestrial ecosystems if they are not carefully controlled. Management actions are aimed at preventing the establishment of new invasive species, and reducing the distribution and area covered by existing invasive species in the RISL.



Koror State Rangers and volunteers removing crown of thorns starfish from the reef. Photo courtesy of PCS.

The long-term goal for the RISL is to effectively increase the health of key species and ecosystems, and ensure that the use of natural resources in the RISL has minimal impact. However, there is little baseline biological data on the RISL, which is crucial for effective management and the identification of key areas for protection. Therefore, the current management plan focuses on increasing that biological knowledge through numerous surveys, including surveys of birds, turtles, dugong, ants and plants. This will then inform further management actions in future management plans.



A typical healthy outer reef scene within the RISL. Photo courtesy of PCS.

## Management Actions

**Table 1. Biodiversity/Natural System Health Enhancement Management Actions**

Objective	Action
By 2015 surveys of valuable food fish in the RISL are conducted.	Conduct survey of valuable food fish species, including fish habitats. <ul style="list-style-type: none"> <li>❖ Focus on highlighting critical, high diversity and degraded habitats.</li> <li>❖ Focus on fish spawning aggregations.</li> </ul>
	Work with Bureau of Marine Resources and fishermen’s associations to identify traditionally known important habitats.
By 2016 management in the RISL is informed by data, such as the findings and recommendations of the fish surveys and monitoring of existing Marine Protected Areas (MPAs).	Develop specific action plans for habitats showing degradation or poor health.
	Develop specific action plans for identified critical habitat, including fish spawning aggregation sites.
	Continue monitoring of species health and abundance at Marine Protected Area monitoring sites to assess the effectiveness of protected areas.
By 2016 biological baseline data within the RISL has been developed, focusing on key terrestrial and marine species.	By 2015 create a database of all relevant scientific knowledge about the RISL to identify critical knowledge gaps and use existing data to inform policy.
	Conduct turtle nesting and population surveys.
	Conduct dugong habitat survey.
	Conduct survey of sea cucumber populations.
	Conduct bird diversity survey in the RISL. <ul style="list-style-type: none"> <li>❖ Emphasis on megapodes.</li> </ul>
	Conduct vegetation survey in the RISL. <ul style="list-style-type: none"> <li>❖ Focus on rare and/or endemic species.</li> </ul>
	Conduct ant diversity survey in the RISL.
	Continue monitoring and surveys of marine lakes, including monitoring of invasive species, pollution and weather.
By 2015 the effectiveness of protected areas in the RISL has been strengthened, by creating new Conservation Areas, and promoting the importance of protected areas to the community.	Establish a “wildlife preserve” at Kmekumer Islands for the protection of Hawksbill nesting beaches, nesting turtles and eggs.
	Establish a protected area for known spawning site for kemedukl (humphead parrot fish).
	Implement a public awareness campaign to promote the importance and benefits of protected areas for the community, to ensure greater compliance and effectiveness of these conservation areas.
By 2016 strategies have been developed to enhance the resilience of ecosystems in the RISL to climate change.	Continue and expand research on key stresses/ threats from climate change.
	Conduct research into the resilience of ecosystems to climatic stressors.
	Conduct research to assess current non-climatic stresses and threats to ecosystems, and conduct vulnerability assessments.
	Create action plans to reduce identified non-climatic stresses, to enhance ecosystem resilience.
	Identify best management practices (BMPs) for dealing with shoreline erosion in other similar ecosystems, and investigate the feasibility of implementing action plans based on these BMPs.
	Continue support of the long-term program to monitor shoreline erosion.
By 2016 strategies and plans have been developed and implemented to	Develop and begin implementation of a comprehensive and practical biosecurity (prevention and rapid response) plan for the RISL.

prevent the establishment of new terrestrial or marine invasive species, and reduce the distribution and area covered by existing invasive species in the RISL.	Conduct survey of major invasive terrestrial species to assess priority problems.
	Assess and regularly monitor the distribution and area covered by invasive plant species on the Rock Islands.
	Develop opportunistic monitoring and response plan for identified marine invasives.
	Develop and implement programs to manage/control priority invasive species in the RISL, including reporting systems and response strategies.
	Continue efforts to control the populations of Crown of Thorns Starfish within the RISL.
	Train the rangers and beach boys to identify and remove invasive terrestrial plant species, particularly from tourist areas and areas around picnic huts.
	Continue rat control programs in the RISL to reduce rat populations.
	Remove invasive plant species from the RISL and regularly re-visit areas to monitor for and remove new growth.
	Develop outreach and education programs to increase awareness of all regulations relating to plants and animals of the Rock Islands.
	Develop outreach and education programs to increase awareness of all regulations relating to plants and animals of the Rock Islands.



Ngerukewid Islands National Wildlife Preserve. Photo by Patrick Colin.

## Goal 2: Subsistence and Commercial Fisheries Improvement

### Description of Management Issue

The RISL is a major fishing area, for both commercial and subsistence fishing. As Koror is the main population centre, the surrounding RISL waters are the most intensively used and important subsistence fishing areas for the people of Palau. Invertebrates are also heavily harvested by locals in the RISL, including crabs, lobsters, clams, shellfish, sea cucumbers and sea urchins. There is also major fishing pressure from commercial fisheries, including from foreign interests that are linked to local businesses. In many cases, there is a lot of overlap between subsistence and commercial fisheries, with many people selling some of their catch and keeping the rest.



Harvesting giant clams.  
Photo by Ann Kitalong.

This high level of fisheries is believed to have negatively impacted fish populations in the RISL. This is a major concern for the community, who rely on access to healthy fish stocks as a crucial everyday food source, and as a part of customs. Commercial fishing is also economically valuable, and is an important source of income.

Fisheries must therefore be managed as a valuable resource for the people of Palau. The fishery management actions in this plan focus on achieving more sustainable fishing in the RISL, with priority to local communities, so that fisheries resources remain healthy for the future. Management actions are designed to reduce harvesting pressure and achieve an increase in the health of fish populations within the RISL, through creating a minimum amount of regulations and zones, and through investigating sustainable harvest rates for key species.

Aquaculture is also a fisheries management concern, with several aquaculture sites existing within the RISL. Aquaculture can act as an alternative to harvesting of wild populations, thus relieving pressure on those fish stocks. However, aquaculture can also have adverse impacts on the marine environment, and add alternative pressures to natural systems and populations, particularly eutrophication. Therefore, managers are concerned with limiting the number of aquaculture sites within the RISL, and ensuring they are strictly regulated. Management actions within this plan reflect those concerns, and include the creation of an aquaculture zone, aquaculture regulations, and the continued, consistent monitoring of water quality at aquaculture sites.



Aquaculture farm in the Rock Islands  
Southern Lagoon. Photo by Tiffany  
Harrison.

## Management Actions

**Table 2. Subsistence and Commercial Fisheries Improvement Management Actions**

Objective	Action
<p>➤ Ensure fisheries are sustainable by decreasing overall fishing pressure in the RISL.</p> <ul style="list-style-type: none"> <li>❖ By 2016 Koror State Government has developed the institutional capacity to manage and regulate fisheries.</li> <li>❖ By 2016 subsistence and commercial fishing and other extractive activities in the RISL are guided by zones and associated regulations.</li> </ul>	Develop/enhance regulations for subsistence, customary and commercial harvesting of fish and invertebrates in the appropriate zones.
	<ul style="list-style-type: none"> <li>❖ Develop harvesting restrictions for giant clams (e.g. through size and bag limits, moratorium on some species).</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Develop State regulations for fishing gear and practices (e.g. net types) to address gaps in National regulations.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Develop fishing regulations for tourists, which limits visitors to only catch and release, or a separate permit for sports fishing/derbies.</li> </ul>
	Develop a Fisheries Impact Assessment (FIA) procedure for Koror State.
	Create fisheries zones in the RISL.
	<ul style="list-style-type: none"> <li>❖ Designate invertebrate no-harvesting zones in the RISL.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Designate a tourists' fishing zone to limit the impacts by visitors.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Create clear no-take zones informed by the findings of the fish surveys and other information on critical/breeding habitat.</li> </ul>
	Create guidelines for fishing tournaments, including exemptions to the usual zones.
	Strengthen the regulations on commercial fishing within the reef, including the ban on foreign-owned fishing businesses and joint-commercial fishing ventures with foreign fishermen.
	Publicize harvesting regulations and conservation areas, including through the internet, brochures, posters, maps, newspaper, radio, television, and presentations and signs on docks or other public places.
	Develop and implement targeted awareness and education programs for resource users (including tourists) to increase their knowledge and understanding of the importance of fish resources and the reasons for regulations and restrictions, particularly focusing on the benefits of no-take zones to fisheries.
By 2016 best management practices for key species are developed, including sustainable harvest rates and reseedling programs.	Partner with relevant agencies to undertake research into sustainable harvest levels, focusing on:
	<ul style="list-style-type: none"> <li>❖ Catch Per Unit Effort (CPUE) over time.</li> <li>❖ Size and abundance of fish populations.</li> </ul>
	Investigate the feasibility and/ or effectiveness of reseedling programs for key species such as rabbit-fish, trochus and/or grouper.
	Create a reseedling program for giant clams.
By 2016 aquaculture projects are in accordance with Koror State Government aquaculture zones and regulations.	Create guidelines for captive breeding programs supplying reseedling stock, to prevent negative genetic impacts.
	Legislature passes law to adopt aquaculture zone/s in the RISL to contain aquaculture within existing areas.
	Assess the number and status of existing aquaculture sites.
	Develop aquaculture regulations for Koror State.
	<ul style="list-style-type: none"> <li>❖ By 2016 regulations have been developed which cap the number of aquaculture sites and enterprises within the RISL.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Regulate the species which can be cultured.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Ensure aquaculture projects are in accordance with state regulations.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Develop water quality standards.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Make it a requirement for all new aquaculture projects to undergo an FIA before approval.</li> </ul>
Work with the Environmental Quality Protection Board to ensure consistent water quality monitoring of the aquaculture sites.	
Create guidelines that require aquaculture enterprises to be self-regulating industries.	

### Goal 3: Cultural and Historical Preservation

#### Description of Management Issue

The Rock Islands Southern Lagoon is an area with a rich cultural history, and holds important cultural value for Palau. The Rock Islands were inhabited for centuries, and the people of Koror and other areas of Palau can trace their ancestry back to the area. The Rock Islands contains many cultural sites and artifacts that are hundreds to thousands of years old, including the remains of stone villages, cave burial sites, and rock art (see Chapter 5). The cultural importance of the area was recognized with the inscription as a UNESCO World Heritage Area.



Ulong red-painted rock art. Photo by Clark/ Reepmeyer, ANU.

The RISL also played an important part in the more recent history of WWII, with many historic relics remaining from battles fought in the area.

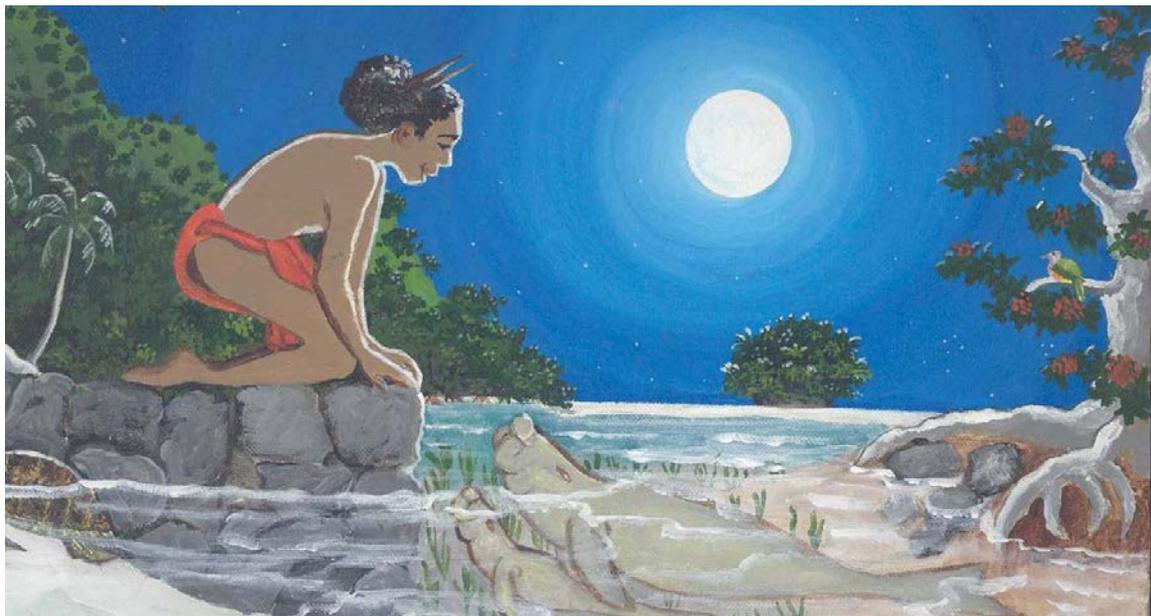
The Koror State Department of State and Cultural Affairs (KSDSCA) is mandated to protect and preserve cultural and historical properties/features within Koror. A permitting and fee system acts to restrict all access to historical and tangible cultural properties. However, much more work needs to be done to protect and preserve the RISL's cultural and historical features and sites, particularly from threats such as environmental weathering. Under this Management Plan, KSDSCA will undertake management actions that will lay the foundation of future preservation work, including the creation of State registries, plans and protocols for managing these properties. It is important to build these components, and build the capacity of KSDCA, in order to undertake more specific rehabilitation and preservation action plans.

Work to preserve traditional cultural sites and artifacts in the area will be an important part of management in the coming decades. Although most cultural sites/features have been mapped and registered with the national registry, it is important to develop a Koror State registry of sites, so that the State can better control and manage cultural properties. This management plan calls for the creation of that State registry, and a timeline for registering key sites. Many cultural sites/features are also in critical need of rehabilitation, and currently there has been little work done in this area. It is important that these sites, which link communities to the past, are included as a management priority, so that they can be preserved for future generations to appreciate. This Management Plan therefore aims to begin the process of preservation and restoration, with plans for restoration of at least three sites.



Ulong stone work village defensive wall. Photo by Clark/ Reepmeyer- ANU

The strength of the community’s cultural connection to the area is also an issue which managers are concerned about enhancing. Whilst many people still use the area for culturally important activities such as fishing and gleaning, people no longer live in the Rock Islands or have the same interactions with the area. It is felt that some of the cultural values, stories and traditions of the Rock Islands have become lost or less valued by communities over time. Management actions seek to assess and enhance the way people with traditional ties to the RISL value the area, including through school programs and educational campaigns. Koror State will also work to compile and sharing oral traditions from the RISL as part of these awareness campaigns.



Palauan legend. Painting by Adora Hideo, courtesy of PCS.

It is also important to preserve and manage the WWII historic relics within the area. Limited work has been done to identify, register and protect these historical relics and sites. Management actions in this plan will focus on developing a State register for historical features, and protocols and plans for protecting and handling relics. Historical relics from WWII also include unexploded ordnance, which pose significant safety issues for both locals and visitors, and require plans to deactivate and remove any threats.



Japanese canon in a cliff-face in the Rock Islands. Photo by Tiffany Harrison

## Management Actions

**Table 3. Cultural and Historical Preservation Management Actions**

Objective	Action
By 2014 Koror State Government has developed a program for protecting and rehabilitating cultural sites and features in the RISL, including the creation of a State registry, and the development of protocols and plans.	Establish a Koror State registry for all cultural sites and features, and establish a timeline for the inclusion of cultural sites/features in the RISL.
	Establish a timeline for the inclusion of the remaining unregistered cultural sites/features in the RISL into the National registry.
	Work with Bureau of Arts and Culture to develop protocols and plans for maintaining and rehabilitating cultural sites.
By 2016 at least three village sites that are in critical need of care or rehabilitation have been identified and a plan for their rehabilitation developed.	Conduct survey to assess village sites and prioritize for rehabilitation.
	Koror State Department of State and Cultural Affairs to work with Bureau of Arts and Culture to develop a rehabilitation plan for each site, and build capacity to implement the plans.
	Develop and implement communication outreach on efforts to rehabilitate village sites.
By 2015 50% of the traditional cheldebechel of Koror have access to information on and value the importance of the RISL to Koror's cultural heritage.	Conduct social survey in 2013 to gauge awareness about the RISL's cultural value (partner with organizations such as Palau Conservation Society to conduct this survey).
	Work with Bureau of Arts and Culture to collect documented oral traditions within the RISL.
	Develop awareness materials/education programs for the RISL, including the sharing of oral traditions collected from the RISL.
	Implement outreach activities (radio, TV, community activities etc) in partnership with established programs by partners such as PCS, PVA, PICRC, BNM.
	Incorporate cultural traditional place names and species names into maps, signage and everyday use to revive the traditional bond to places (as opposed to foreign/ English names currently used).
	❖ Work with traditional leaders to document place names and create new names for areas where names may not exist.
	❖ Work with key stakeholders to consider a revision of the name of the RISL, to reflect cultural values, and a name that is Palauan.
	Expand on existing youth and school programs to include more activities and information related to the RISL's cultural value.
	Conduct social survey in 2015 to assess if people's awareness about the RISL's cultural value has increased.
By 2014 Koror State Government has developed a program for protecting and preserving historical relics/ sites in the RISL (i.e. WWII relics), including the creation of a State registry, and the development of protocols and plans.	Establish a Koror State registry for all historical relics and sites, and develop a timeline for the registration of key historical sites.
	Conduct survey to identify key historical sites and their current state, including the presence of any unexploded ordnance from WWII sites.
	Develop a plan to preserve and or/ increase the safety of the RISL's historic sites, including:
	❖ Arrange for the removal of unexploded ordnance from WWII sites.
	❖ Develop guidelines so that any work done by outside organizations/ Governments is done with prior Koror State approval, and information is reported back.
	Co-ordinate with the office of the President of the Republic of Palau to secure the return to Koror State historic era properties that are controlled through the Lagoon Marine Protection Act.
By 2016, a section depicting RISL and Koror State cultural traditions and historic era is established at the Belau National Museum.	Koror State work with Belau National Museum to create the capacity and space to develop a section dedicated to the RISL at the museum.
	Koror State Department of State and Cultural Affairs to work with the Belau National Museum and other relevant agencies to gather information, stories and pictures about the cultural traditions and historic era in the RISL, and create exhibits.

## Goal 4: Tourism, Recreation, and Economic Enhancement

### Description of Management Issue

The RISL is the foundation of Palau's tourism industry, and as such is of extreme economic importance. The vast majority of tourism in Palau occurs within the RISL, and the area is the main attraction that visitors come to see. Therefore tourism is a very important component to be considered in managing the area. It is important to ensure that tourism is of a world class standard that meets visitor expectations, and is developed and expanded to continue to attract tourists and the associated economic revenue. Tourism in the area is primarily focused on marine based activities such as diving and snorkeling. Several objectives in this management plan address the need to expand tourism into other areas, such as cultural tours and bird-watching tours.



Tourist diver in the RISL.



Tourists enjoying the mud scrub at the milky-way, in the RISL. Photo by Tiffany Harrison.

It is important to ensure that tourism within the RISL does not impose negative impacts, particularly to natural ecosystems. Increasing numbers of visitors and types of recreational activities have led to safety, congestion and environmental concerns. Many of the activities within this plan relating to tourism therefore create regulations and guidelines that aim to effectively improve and control tourism, and to ensure tourism in the RISL is sustainable and has minimal environmental impact.



The typical style of shelter found at tourist activity areas in the RISL.

The RISL is also a key recreational area for locals, and it is important that local-only sites and facilities are maintained for the community to use. However, some local sites are not maintained by local visitors in the best condition, and best management practices for low impact use must also be promoted.

The RISL is zoned as a conservation area, and is therefore largely undeveloped, with very little direct impact from infrastructure, construction, and development activities. However, situated on the outer edges of the RISL are aquaculture sites, a sand mining operation, and a dolphin aquarium, Dolphins Pacific. This Management Plan calls for the creation of a zone where these activities will be restricted to, called the Special Management Zone (SMZ). It is important to ensure that any development is allowed only within the SMZ, and that these



Dolphins Pacific at Ngeruktabel, in the Special Management Zone of the RISL.

activities are prohibited in the wider area of the RISL. Within the main RISL conservation area, some infrastructure may also be required to be built on the Rock Islands to support tourism and local recreation. This therefore must be effectively regulated and controlled to ensure minimal impact. Development on the main inhabited islands of Koror, outside of the RISL management area, may also have environmental impacts on the RISL, and as such should be managed and monitored.

Boating is also an important management issue in the RISL. Boating is an essential part of daily life, and motorboats are used both privately for fishing and other recreational activities, and commercially by tourism and fisheries industries. Large commercial container ships, yachts, and personal watercraft (jet skis) also have restricted passage through the RISL. The growing number of boats and type of boating activities has raised concerns over the environmental impact these activities are having, as well as safety issues. There is also a pressing need to manage the mooring and anchoring of vessels in the RISL. Management actions focus on developing regulations to address these concerns, and ensure safe, low impact boat use.



Boats moored in Rebai Melachel, RISL. Photo by Tiffany Harrison.



Commercial fishing boats used in Palau. Photo by Ron Leidich.

## Management Actions

**Table 4. Tourism, Recreation, and Economic Enhancement Management Actions**

Objective	Action
<p>➤ Enhance tourism guidelines and regulations and ensure that tour operators and tour guides are in compliance with these.</p> <p>❖ By 2015 all tour operators are familiar with and are implementing tours according to the tour guide certification program.</p>	Implement tour guide certification program by 2013.
	Create a staff position within Koror State dedicated to tourism, responsible for the tour guide certification program, the enforcement of regulations and guidelines, liaison with tour operators, and the development of new tourism ventures.
	Review and enhance tourism regulations, guidelines and standards.
	❖ Make it a requirement that all tour guides have adequate English and/or Palauan language skills.
	❖ All tour guides must pass a standard language test as part of the tour guide certification program.
	❖ Establish regulations by 2014 for Ongeim'l Tketau, Jellyfish Lake.
	Conduct survey in 2015 of current tour operators and tour guides to assess awareness and adherence to tourism guidelines
	Create enforcement and monitoring programs to ensure that tour operators are in compliance with regulations.
	❖ Create a fine system for non-compliance to regulations and negative practices.
	Create an incentive program, including an award system, for tour operators to reward good operating practices.
	❖ Explore feasibility of developing a special 'eco-friendly operator accreditation' to reward environmentally conscious operations, including restaurants that comply with wildlife regulations (with any breach of regulations resulting in loss of accreditation).
	Work with relevant organizations to publicize tourist activity areas and regulations, including user fee information, through brochures, maps, posters, radio, and television.
	<p>By 2016 tour operation guidelines and plans to ensure sustainable and low impact tourism have been developed.</p>
❖ Rotational systems of tourist area use.	
❖ Designate new tourist sites to allow for rotational site use and to reduce the pressure on existing sites.	
❖ Temporary/ seasonal site closure.	
❖ Restrictions on tourist numbers/ tour boat numbers.	
❖ Regulate diving and snorkeling activities in the RISL to reduce site congestion, reduce damage to corals and other marine organisms, and increase site safety.	
❖ Assign scuba certification levels for key dive sites.	
❖ Establish regulations protecting manta feeding/cleaning zones of high aggregation.	
❖ Control fish feeding activities.	
❖ Limit fish feeding sites.	
❖ Control the amount and type of food given.	
❖ Develop regulations regarding visitor behavior at cultural and historical sites.	

	Partner with relevant agencies to conduct environmental surveys/ research to assess:
	❖ Environmental impacts of tourism in the RISL.
	❖ Conduct regular monitoring of key dive sites to assess long-term impacts from divers and snorkelers.
	❖ Conduct research into tourist use and impacts of tourists at Jellyfish Lake.
	❖ Support research to determine the impacts of diver disturbance on fish spawning activities.
	❖ Carrying capacity of sites.
	❖ Seasonal vulnerability of important species within sites.
	Continue socio-economic surveys of tourism use in the RISL.
	Create and enforce guidelines for future development/construction of tourist facilities, including energy use and supply.
	Ensure newly developed tourist sites are multi-purpose, to limit the number of new sites needed, thereby limiting the impact of development in the RISL. <ul style="list-style-type: none"> <li>• E.g. Develop new cultural sites in conjunction with new bird-watching tourism.</li> </ul>
	Work with relevant agencies to develop educational and awareness material for tourists and locals explaining the environmental and cultural significance of the Rock Islands-Southern Lagoon Area and how they can help protect it.
	❖ Develop a litter awareness campaign to encourage all visitors to the RISL to reduce the amount of trash they produce and take all trash with them when they leave, including food scraps and cigarette butts.
<p>➤ Strengthen and enhance the cultural aspect of Koror State's RISL visitor experience.</p> <p>❖ By 2015 the cultural heritage of at least three tourism sites have been identified and developed as part of the RISL visitor experience.</p> <p>❖ By 2015 cultural heritage training for tour guides has been developed and incorporated into the tour guide certification program.</p> <p>❖ By 2016 at least 25% of tour operators in the RISL have integrated traditional cultural resource tours into their tour programs.</p>	Identify cultural sites to be tourist attractions.
	Build infrastructure to support visitors.
	Koror State Department of State and Cultural Affairs to develop cultural heritage tourism guidelines and training.
	Koror State Department of State and Cultural Affairs to develop cultural site maintenance plan.
	❖ Locate visitor arrival points and facilities away from the immediate environs of cultural sites to minimize site degradation from trash dumping, foot traffic and the construction and maintenance of tourist structures.
	Develop interpretive and other signage in the Palauan and English languages to educate and inform visitors about the site and appropriate behavior within the site.
	Promote the importance and value of cultural heritage tours to operators.
	❖ Conduct FAM tours for operators.
	Work with Palau Visitors Authority, Belau Tourism Authority and others to promote cultural heritage tours to visitors.
	Conduct survey in 2016 to assess the number of tour operators which have integrated traditional cultural resource tours into their programs, and their adherence to tour guide training recommendations.
<p>➤ Promote the historical aspect of Koror State's RISL visitor experience.</p> <p>❖ By 2015, guidelines and training for tour operators have been developed concerning historical</p>	Identify historical sites/features to be tourist attractions.
	Develop historical tourism guidelines and training, and incorporate into tour guide training.

sites, and incorporated into tour guide training.	
<p>➤ Strengthen and enhance the natural aspect of the RISL visitor experience.</p> <ul style="list-style-type: none"> <li>❖ By 2016 new nature-based tourism ventures are under development, particularly regarding the opportunity to build a bird-watching tourist market.</li> </ul>	Work with Belau National Museum and Palau Visitors Authority to develop bird-watching tourism in the RISL, including:
	❖ Tours in the RISL dedicated to bird-watching.
	❖ Tour operating guidelines and training specific to bird-watching.
	❖ An assessment of suitable sites for bird-watching.
	<ul style="list-style-type: none"> <li>❖ Creation of new pathways, infrastructure, information signs, and species checklists for bird-watching sites. <ul style="list-style-type: none"> <li>• Note: this may be done in conjunction with the development of other new tourist sites, e.g. cultural sites.</li> </ul> </li> </ul>
❖ Co-ordinate with Palau Visitors Authority to create tourist information dedicated to bird-watching.	
<p>➤ Maintain local resident access to the RISL and enhance the local Palauan visitor experience/ recreational use.</p> <ul style="list-style-type: none"> <li>❖ By 2016 facilities at key local only sites have been constructed and/ or improved.</li> <li>❖ By 2016 develop best management practices (BMPs) for local site use.</li> </ul>	Identify new areas which could be developed as local recreational sites.
	Assess the accessibility and quality of facilities at local only sites, and develop a plan to construct and/or improve site facilities where necessary.
	Develop BMPs for local site use including:
	❖ Waste disposal.
	❖ Facilities use.
	❖ Regulations on what can be brought in and out (i.e. no plants and animals to be brought in).
	❖ Interactions with wildlife.
	❖ Anchoring and mooring of boats.
	❖ Community maintenance and renovations, including the development of an “Adopt a beach” program.
	Develop an education and outreach program to increase awareness about BMPs for local recreational use of the RISL and the importance of respectful site use.
<p>By 2016, develop and enhance regulations and monitoring to ensure that development in the RISL Management Area is strictly controlled, while allowing necessary infrastructure to support better management of the area.</p>	Review and strengthen regulations to strictly control any future development in the RISL.
	Officially designate a Special Management Zone (SMZ) within the RISL which includes the sand mining operation site, aquaculture sites, and Dolphins Pacific.
	❖ Regulate and control development within the Special Management Zone.
	❖ Work with Environmental Quality Protection Board to establish strict controls and no-expansion limits for the current sand mining operation within the SMZ.
	❖ Establish a minimum water quality standard for the SMZ.
❖ Establish measures to mitigate the impacts of activities that violate the minimum water quality standards, including fines.	

	For all areas in the RISL outside of the SMZ development will be strictly controlled and limited to the construction of low-impact facilities.
	❖ Work with the Department of Public Works to create guidelines for construction and building of small scale facilities in the RISL.
By 2016 develop/enhance regulations and monitoring for development in and around Koror to minimize degradation and pollution impacts in the RISL.	Create a Koror State reporting system and review process for all proposed development activities in Koror State.
	Work with relevant departments to ensure that development in Koror is in adherence with regulations and the Environmental Impact Assessment (EIA) process.
	Partner with relevant agencies to conduct research/monitoring into the impacts of the Malakal sewage outfall on the marine environment.
	Partner with relevant agencies to conduct more detailed monitoring/research to determine the impacts of the M-dock rubbish dump on the surrounding ecosystem (plants and animals).
By 2016 regulations and guidelines have been developed to ensure boating safety and minimize the impact of boating activities in RISL waters, including the mooring/anchoring of vessels.	Establish regulations for vessels entering and mooring/anchoring in Koror State waters.
	❖ Create partnerships with relevant agencies to manage visitor boat numbers/traffic and improve existing regulations for motorboat registration.
	❖ By 2015 conduct a socio-economic assessment on waste disposal for resident and visitor vessels.
	❖ Create waste disposal regulations and fees.
	Establish and promote regulations for anchoring to reduce the loss and degradation of coral reefs.
	Develop a formal procedure and task force (including PICRC, EQPB, AG, CRRF, States) to deal with ship groundings within the State (including legislation if necessary).
	Develop a formal procedure to deal with oil spills within the State.
	Establish standard search and rescue/recovery procedures within the State.
	Work with the National Government to develop a State boat operator's license.
	Work with Division of Transportation, Marine Law and other National Government departments to define boat channels and/ or implement speed restrictions in areas that have high boat activity, diving/snorkeling activities occur, are ecologically significant or sensitive.
	Develop and implement comprehensive water safety regulations for Koror State to increase the safety and quality of all water activities and tours in the Management Area.
	Identify partners to help with the removal of abandoned vessels.

## Goal 5: Koror State Government Institutional Capacity Development

### Description of Management Issue

The management of the RISL is a complex task, involving the co-ordination and implementation of the large number of activities called for in the Management Plan. In order to effectively manage all aspects of the RISL, it is important that the capacity of the lead agency, Koror State Department of Conservation and Law Enforcement (KSDCLE), is also addressed in this Management Plan. KSDCLE has been effectively managing and engaging in surveillance and enforcement for almost two decades. However, the increased challenges and complexity of the management efforts required under this Management Plan should be matched by a development of internal capacity. The inscription of this area as a UNESCO world heritage site also places the management of this area under international scrutiny. This plan therefore aims to address a range of activities which will help KSDCLE and other Koror State departments manage the RISL and implement the plan.

Since the 1960's Koror State has been active in passing legislation to control activities within the RISL. It is important, however, that legislation is updated to reflect new activities, resource uses and pressures, and management concerns. There are a number of regulations which need to be revised, and a number of new regulations which need to be drafted. There is also a need to develop zones for activities and resource use, particularly relating to fisheries and development.

The ability to effectively monitor and enforce those regulations is also vital. Faced with a large management area, the range of regulations to enforce, and the number of conflicting resource uses, ensuring legal compliance within the RISL is a major undertaking. The Management Plan aims to enhance the capacity for effective enforcement, by reviewing and developing new enforcement and surveillance activities and tools, and by focusing on ensuring that the rangers program is adequately staffed and resourced to meet new management challenges.



Koror State Ranger on patrol.

Koror State must also focus on developing communication and strong working relationships with partnering agencies involved in management activities, and with key stakeholders, including the tourism industry, fisheries groups, and the wider community. This is essential not only for the effective implementation of this Management Plan, but also for long-term management, and community engagement and compliance. The engagement of the agencies involved in management and research in the area is essential to ensure maximization and co-ordination of efforts, so that any work in the RISL is integrated and strategic. The engagement of key stakeholders is essential to ensure voluntary compliance and good will.

## Management Actions

**Table 5. Koror State Government Institutional Capacity Development Management Actions**

Objective	Action
<p>By 2016, regulatory and legislative frameworks for management in the RISL have been reviewed and, where appropriate, improved.</p>	<p>Review and update the effectiveness of current regulations relating to management in the RISL, including but not limited to:</p>
	<ul style="list-style-type: none"> <li>❖ Fishing License.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Rock Island Conservation Act.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Amend Koror State Public Law No. K6-121-2001 regarding the monetary value of damage to coral reef ecosystems located in Koror State's Waters, to include the use of settlement funds to cover legal costs and site restoration efforts (if required), and develop regulations to enforce the act.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Amend boating regulations and licensing.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Municipal ordinance 49/69.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Amend the curfew law.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Amend the air rifle regulations.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Amend photo permit legislation.</li> </ul>
	<p>Identify gaps/weakness in current regulations and work to create new legislation and regulations, including but not limited to:</p>
	<ul style="list-style-type: none"> <li>❖ Create a mandate requiring that all research in the RISL is reported to a centralized database within Koror State Government, and recommendations are provided to help inform management.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Create procedural guidelines for dealing with emergency situations.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Create regulations that state that all commercial activities carried out in the RISL must be permitted by Koror State.</li> </ul>
	<p>By 2016 the capacity of Koror State Government to effectively carry out enforcement and surveillance activities in the RISL has been enhanced.</p>
<ul style="list-style-type: none"> <li>❖ Ensure that all harvesting of timber in the RISL in cases exempted from the ban (i.e. for cultural purposes) are approved by the Traditional Leadership and Koror State Government and follow established guidelines.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Establish formal procedures between State and traditional leaders for the harvesting of timber.</li> </ul>	
<p>Review the effectiveness of enforcement and surveillance activities. Maintain all effective enforcement activities, and where regulations are not being adhered to, assess strategies to improve enforcement.</p>	
<ul style="list-style-type: none"> <li>❖ Full implementation of Ngemelis Outpost and replication at other sites.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Establish a database for boat registration/visiting vessels, citations, aquaculture, and research permits.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Establish a secure VHF channel.</li> </ul>	
<p>Work with other states which share boundaries with Koror State to develop regulations to protect important cross- border areas, such as the German Channel, by coordinating and supporting enforcement of regulations in Koror and neighboring state waters.</p>	
<p>Improve the capacity of Koror State Conservation and Law Enforcement to carry out enforcement and surveillance activities.</p>	
<ul style="list-style-type: none"> <li>❖ Review and improve the training of State Rangers.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Ensure adequate staffing and technical support.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Ensure adequate capacity so that other commitments, such as monitoring community events, do not interfere with operational capabilities within the RISL.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Deputize select Rangers to enhance enforcement authorities where needed.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Establish Standard Operating Procedures (SOPs).</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Establish a department-wide staff ranking system.</li> </ul>	

	<ul style="list-style-type: none"> <li>❖ Ensure necessary equipment (such as GPS, cameras, scuba gear are acquired, and expand facilities.</li> </ul>
	Develop procedures for permitting processes and exemptions (e.g. visitor permits, filming permits).
By 2016, Koror State Government has worked to strengthen relationships and communication with organizations involved in the implementation of activities, and with key stakeholders/ resource users.	Identify organizations which will be implementing specific activities, and engage them to carry out required tasks.
	<ul style="list-style-type: none"> <li>❖ Establish Memorandum of Agreements (MOAs) with organizations involved in the implementation of activities.</li> </ul>
	Strengthen the partnership with key organizations which will be instrumental in the long-term management of the RISL.
	Work with key organizations to ensure they have sufficient capacity to carry out tasks by the dates required.
	Develop protocols for issues which are cross-jurisdictional and involve several departments or levels of Government.
	Work to strengthen the communication between internal and external key partners, including the sharing of key information/data.
	<ul style="list-style-type: none"> <li>❖ Work to develop and maintain a database for all information relevant to the RISL.</li> </ul>
	Create a website dedicated to the RISL to allow for the effective sharing of information, including visitor information, reports, regulations and zones, maps, links to partners, and ongoing projects.
	Strengthen the relationship with tour operators, including:
	<ul style="list-style-type: none"> <li>❖ Continue to strengthen communication and cooperation between Koror State and tour-operators through regular meetings, and liaison with tour tourism related agencies/bodies.</li> </ul>
	<ul style="list-style-type: none"> <li>❖ Work with tour-operators to develop a coral reef monitoring program to assess diver and snorkeler impacts on key dive and snorkel sites, increase environmental awareness, and strengthen relationships between the government and tourism industry.</li> </ul>
	Strengthen the relationship with fisheries co-operatives and fishermen associations.
	Identify key stakeholders/ resource users for the RISL, and work to include them in the management process.
	<ul style="list-style-type: none"> <li>❖ By 2013 conduct socio-economic surveys to identify key resource users and stakeholders.</li> <li>❖ By 2014 involve identified stakeholders in the 2 year review process/ community consultation.</li> </ul>
	By 2016 establish links with other management programs at a national, regional and international level to better manage the RISL.
By 2013 develop the administrative capacity to meet requirements as a United Nations Educational, Scientific, and Cultural Organization (UNESCO) World Heritage Site, including reporting.	
<ul style="list-style-type: none"> <li>❖ Coordinate with Palau International Coral Reef Center, Belau National Museum and other organizations for monitoring and reporting required by UNESCO and the World Heritage Committee and its relevant advisory bodies.</li> </ul>	
<ul style="list-style-type: none"> <li>❖ Establish a UNESCO World Heritage Site visitor information kiosk and displays, integrated as part of existing visitor centers (BNM, PICRC).</li> </ul>	
Investigate the feasibility of linking the RISL to other regional and international conservation programs.	

## Chapter 3: Implementation of the Management Plan

### Implementation Strategies

The activities of this Management Plan, which work towards achieving clear objectives under the management goals, fall under several different components when it comes to their actual implementation. The implementation strategies are: research and monitoring; management programs and specific action plans; regulations and guidelines; enforcement and surveillance; and education and communication outreach. These five implementation strategies group together similar types of activities, for ease of management operations (see Tables 6-10).

**Table 6. Research and Monitoring Activities**

Research and Monitoring
<ul style="list-style-type: none"> <li>❖ Conduct survey of valuable food fish species, including fish habitats.               <ul style="list-style-type: none"> <li>❖ Focus on highlighting critical, high diversity and degraded habitats.</li> <li>❖ Focus on fish spawning aggregations.</li> </ul> </li> </ul>
❖ Work with Bureau of Marine Resources and fishermen’s associations to identify traditionally known important habitats.
❖ By 2015 create a database of all relevant scientific knowledge about the RISL to identify critical knowledge gaps and use existing data to inform policy.
❖ Conduct turtle nesting and population surveys.
❖ Conduct dugong habitat survey.
❖ Conduct survey of sea cucumber populations.
<ul style="list-style-type: none"> <li>❖ Conduct bird diversity survey in the RISL.               <ul style="list-style-type: none"> <li>❖ Emphasis on megapodes.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Conduct vegetation survey in the RISL.               <ul style="list-style-type: none"> <li>❖ Focus on rare and/or endemic species.</li> </ul> </li> </ul>
❖ Conduct ant diversity survey in the RISL.
<ul style="list-style-type: none"> <li>❖ Continue monitoring and surveys of marine lakes, including monitoring of invasive species, pollution and weather.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Continue and expand research on key stresses/ threats from climate change.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Conduct research into the resilience of ecosystems to climatic stressors.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Conduct research to assess current non-climatic stresses and threats to ecosystems, and conduct vulnerability assessments.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Continue support of the long-term program to monitor shoreline erosion.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Conduct survey of major invasive terrestrial species to assess priority problems.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Assess and regularly monitor the distribution and area covered by invasive plant species on the Rock Islands.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Develop opportunistic monitoring and response plan for identified marine invasives.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Continue monitoring of fish and invertebrates at Protected Area monitoring sites and control sites (non-protected reefs) to assess the effectiveness of protected areas.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Partner with relevant agencies to undertake research into sustainable harvest levels, focusing on:               <ul style="list-style-type: none"> <li>❖ Catch Per Unit Effort (CPUE) over time.</li> <li>❖ Size and abundance of fish populations.</li> </ul> </li> </ul>

❖ Investigate the feasibility and/ or effectiveness of reseedling programs for key species such as rabbit-fish, trochus and/or grouper.
❖ Assess the number and status of existing aquaculture sites.
❖ Work with the Environmental Quality Protection Board to ensure consistent water quality monitoring of the aquaculture sites.
❖ Conduct survey to assess village sites and prioritize for rehabilitation.
❖ Conduct social survey in 2013 to gauge awareness about the RISL's cultural value (partner with organizations such as Palau Conservation Society to conduct this survey).
❖ Conduct social survey in 2015 to assess if people's awareness about the RISL's cultural value has increased.
❖ Conduct survey to identify key historical sites and their current state, including the presence of any unexploded ordnance from WWII sites.
❖ Conduct survey in 2015 of current tour operators and tour guides to assess awareness and adherence to tourism guidelines.
❖ Partner with relevant agencies to conduct environmental surveys/ research to assess: <ul style="list-style-type: none"> <li>❖ Environmental impacts of tourism in the RISL. <ul style="list-style-type: none"> <li>❖ Conduct regular monitoring of key dive sites to assess long-term impacts from divers and snorkelers.</li> <li>❖ Conduct research into tourist use and impacts of tourists at Jellyfish Lake.</li> <li>❖ Support research to determine the impacts of diver disturbance on fish spawning activities.</li> </ul> </li> <li>❖ Carrying capacity of sites.</li> <li>❖ Seasonal vulnerability of important species within sites.</li> </ul>
❖ Continue socio-economic surveys of tourism use in the RISL.
❖ Conduct survey in 2016 to assess the number of tour operators which have integrated traditional cultural resource tours into their programs, and their adherence to tour guide training recommendations.
❖ Partner with relevant agencies to conduct research/monitoring into the impacts of the Malakal sewage outfall on the marine environment.
❖ Partner with relevant agencies to conduct more detailed monitoring/research to determine the impacts of the M-dock rubbish dump on the surrounding ecosystem (plants and animals).
❖ By 2015 conduct a socio-economic assessment on waste disposal for resident and visitor vessels.
❖ Work with tour-operators to develop a coral reef monitoring program to assess diver and snorkeler impacts on key dive and snorkel sites, increase environmental awareness, and strengthen relationships between the government and tourism industry.
❖ By 2013 conduct socio-economic surveys to identify key resource users and stakeholders.

**Table 7. Management Programs and Specific Action Plans Activities**

<b>Management Programs and Specific Action Plans</b>	
❖	Develop specific action plans for habitats showing degradation or poor health.
❖	Develop specific action plans for identified critical habitat, including fish spawning aggregation sites.
❖	Create action plans to reduce identified non-climatic stresses, to enhance ecosystem resilience.
❖	Identify best management practices (BMPs) for dealing with shoreline erosion in other similar ecosystems, and investigate the feasibility of implementing action plans based on these BMPs.
❖	Develop and begin implementation of a comprehensive and practical biosecurity (prevention and rapid response) plan for the RISL.
❖	Develop and implement programs to manage/control priority invasive species in the RISL, including reporting systems and response strategies.
❖	Continue efforts to control the populations of Crown of Thorns Starfish within the RISL.
❖	Train the rangers and beach boys to identify and remove invasive terrestrial plant species, particularly from tourist areas and areas around picnic huts.
❖	Continue rat control programs in the RISL to reduce rat populations.
❖	Remove invasive plant species from the RISL and regularly re-visit areas to monitor for and remove new growth.
❖	Create a reseeded program for giant clams.
❖	Establish a Koror State registry for all cultural sites and features, and establish a timeline for the inclusion of cultural sites/features in the RISL.
❖	Establish a timeline for the inclusion of the remaining unregistered cultural sites/features in the RISL into the National registry.
❖	Work with Bureau of Arts and Culture to develop protocols and plans for maintaining and rehabilitating cultural sites.
❖	Koror State Department of State and Cultural Affairs to work with Bureau of Arts and Culture to develop a rehabilitation plan for each site, and build capacity to implement the plans.
❖	Work with Bureau of Arts and Culture to collect documented oral traditions within the RISL.
❖	Incorporate cultural traditional place names and species names into maps, signage and everyday use to revive the traditional bond to places (as opposed to foreign/English names currently used). <ul style="list-style-type: none"> <li>• Work with traditional leaders to document place names and create new names for areas where names may not exist.</li> <li>❖ Work with key stakeholders to consider a revision of the name of the RISL, to reflect cultural values, and a name that is Palauan.</li> </ul>
❖	Establish a Koror State registry for all historical relics and sites, and develop a timeline for the registration of key historical sites.
❖	Develop a plan to preserve and or/ increase the safety of the RISL’s historic sites, including: <ul style="list-style-type: none"> <li>❖ Arrange for the removal of unexploded ordnance from WWII sites.</li> <li>❖ Develop guidelines so that any work done by outside organizations/ Governments is done with prior Koror State approval, and information is reported back.</li> </ul>

❖ Co-ordinate with the office of the President of the Republic of Palau to secure the return to Koror State historic era properties that are controlled through the Lagoon Marine Protection Act.
❖ Koror State work with Belau National Museum to create the capacity and space to develop a section dedicated to the RISL at the museum.
❖ Koror State Department of State and Cultural Affairs to work with the Belau National Museum and other relevant agencies to gather information, stories and pictures about the cultural traditions and historic era in the RISL, and create exhibits.
❖ Implement tour guide certification program by 2013.
❖ Create a staff position within Koror State dedicated to tourism, responsible for the tour guide certification program, the enforcement of regulations and guidelines, liaison with tour operators, and the development of new tourism ventures.
❖ Create an incentive program, including an award system, for tour operators to reward good operating practices. <ul style="list-style-type: none"> <li>❖ Explore feasibility of developing a special ‘eco-friendly operator accreditation’ to reward environmentally conscious operations, including restaurants that comply with wildlife regulations (with any breach of regulations resulting in loss of accreditation).</li> </ul>
❖ Ensure newly developed tourist sites are multi-purpose, to limit the number of new sites needed, thereby limiting the impact of development in the RISL. <ul style="list-style-type: none"> <li>❖ E.g. Develop new cultural sites in conjunction with new bird-watching tourism.</li> </ul>
❖ Identify cultural sites to be tourist attractions.
❖ Build infrastructure to support visitors.
❖ Koror State Department of State and Cultural Affairs to develop cultural heritage tourism guidelines and training.
❖ Koror State Department of State and Cultural Affairs to develop cultural site maintenance plan. <ul style="list-style-type: none"> <li>❖ Locate visitor arrival points and facilities away from the immediate environs of cultural sites to minimize site degradation from trash dumping, foot traffic and the construction and maintenance of tourist structures.</li> </ul>
❖ Promote the importance and value of cultural heritage tours to operators. <ul style="list-style-type: none"> <li>❖ Conduct FAM tours for operators.</li> </ul>
❖ Work with Palau Visitors Authority, Belau Tourism Authority and others to promote cultural heritage tours to visitors.
❖ Identify historical sites/features to be tourist attractions.
❖ Develop historical tourism guidelines and training, and incorporate into tour guide training.
❖ Work with Belau National Museum and Palau Visitors Authority to develop bird-watching tourism in the RISL, including: <ul style="list-style-type: none"> <li>❖ Tours in the RISL dedicated to bird-watching.</li> <li>❖ Tour operating guidelines and training specific to bird-watching.</li> <li>❖ An assessment of suitable sites for bird-watching.</li> <li>❖ Creation of new pathways, infrastructure, information signs, and species checklists for bird-watching sites. <ul style="list-style-type: none"> <li>▪ Note: this may be done in conjunction with the development of other new tourist sites, e.g. cultural sites.</li> </ul> </li> <li>❖ Co-ordinate with Palau Visitors Authority to create tourist information dedicated to bird-watching.</li> </ul>

❖ Identify new areas which could be developed as local recreational sites.
❖ Assess the accessibility and quality of facilities at local only sites, and develop a plan to construct and/or improve site facilities where necessary.
❖ Develop BMPs for local site use including: <ul style="list-style-type: none"> <li>❖ Waste disposal.</li> <li>❖ Facilities use.</li> <li>❖ Regulations on what can be brought in and out (i.e. no plants and animals to be brought in).</li> <li>❖ Interactions with wildlife.</li> <li>❖ Anchoring and mooring of boats.</li> <li>❖ Community maintenance and renovations, including the development of an “Adopt a beach” program.</li> </ul>
❖ Develop a formal procedure and task force (including PICRC, EQPB, AG, CRRF, States) to deal with ship groundings within the State (including legislation if necessary).
❖ Develop a formal procedure to deal with oil spills within the State.
❖ Establish standard search and rescue/recovery procedures within the State.
❖ Identify partners to help with the removal of abandoned vessels.
❖ Work with key organizations to ensure they have sufficient capacity to carry out tasks by the dates required.
❖ Develop protocols for issues which are cross-jurisdictional and involve several departments or levels of Government.
❖ By 2013 designate Ngerumekaol Protected Area and Ngerukewid Islands Wildlife Preserve to become part of the Protected Areas Network (PAN), and consider designating other sites to PAN.
❖ By 2013 develop the administrative capacity to meet requirements as a UNESCO World Heritage Site, including reporting. <ul style="list-style-type: none"> <li>❖ Coordinate with Palau International Coral Reef Center, Belau National Museum and other organizations for monitoring and reporting required by UNESCO and the World Heritage Committee and its relevant advisory bodies.</li> </ul>
❖ Investigate the feasibility of linking the RISL to other regional and international conservation programs

**Table 8. Regulations and Guidelines Activities**

Regulations and Guidelines
❖ Establish a “wildlife preserve” at Kmekumer Islands for the protection of Hawksbill nesting beaches, nesting turtles and eggs.
❖ Establish a protected area for known spawning site for kemedukl (humphead parrot fish).
❖ Develop/enhance regulations for subsistence, customary and commercial harvesting of fish and invertebrates in the appropriate zones. <ul style="list-style-type: none"> <li>❖ Develop harvesting restrictions for giant clams (e.g. through size and bag limits, moratorium on some species).</li> <li>❖ Develop State regulations for fishing gear and practices (e.g. net types) to address gaps in National regulations.</li> <li>❖ Develop fishing regulations for tourists, which limits visitors to only catch and release, or a separate permit for sports fishing/derbies.</li> </ul>
❖ Develop a Fisheries Impact Assessment (FIA) procedure for Koror State.
❖ Create fisheries zones in the RISL. <ul style="list-style-type: none"> <li>❖ Designate invertebrate no-harvesting zones in the RISL.</li> <li>❖ Designate a tourists’ fishing zone to limit the impacts by visitors.</li> <li>❖ Create clear no-take zones informed by the findings of the fish surveys and other information on critical/breeding habitat.</li> </ul>
❖ Create guidelines for fishing tournaments, including exemptions to the usual zones.
❖ Strengthen the regulations on commercial fishing within the reef, including the ban on foreign-owned fishing businesses and joint-commercial fishing ventures with foreign fishermen.
❖ Create guidelines for captive breeding programs supplying reseeded stock, to prevent negative genetic impacts.
❖ Legislature passes law to adopt aquaculture zone/s in the RISL to contain aquaculture within existing areas.
❖ Develop aquaculture regulations for Koror State. <ul style="list-style-type: none"> <li>❖ By 2016 regulations have been developed which cap the number of aquaculture sites and enterprises within the RISL.</li> <li>❖ Regulate the species which can be cultured.</li> <li>❖ Ensure aquaculture projects are in accordance with state regulations.</li> <li>❖ Develop water quality standards.</li> <li>❖ Make it a requirement for all new aquaculture projects to undergo an FIA before approval.</li> </ul>
❖ Create guidelines that require aquaculture enterprises to be self-regulating industries.
❖ Support the Department of State and Cultural Affairs to establish a mandate to protect and preserve cultural and historical sites/properties.
❖ Develop a plan to preserve and or/ increase the safety of the RISL’s historic sites, including: <ul style="list-style-type: none"> <li>❖ Arrange for the removal of unexploded ordnance from WWII sites.</li> <li>❖ Develop guidelines so that any work done by outside organizations/ Governments is done with prior Koror State approval, and information is reported back.</li> <li>❖ Co-ordinate with the office of the President of the Republic of Palau to secure the return to Koror State of historic era properties that were confiscated within the RISL through the Lagoon Marine Protection Act.</li> </ul>

<ul style="list-style-type: none"> <li>❖ Review and enhance tourism regulations, guidelines and standards. <ul style="list-style-type: none"> <li>❖ Make it a requirement that all tour guides have adequate English and/or Palauan language skills. <ul style="list-style-type: none"> <li>❖ All tour guides must pass a standard language test as part of the tour guide certification program.</li> </ul> </li> <li>❖ Establish regulations by 2014 for Ongeim'l Tketau, Jellyfish Lake.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Develop guidelines and regulations which minimize visitor impacts on tourist sites including: <ul style="list-style-type: none"> <li>❖ Rotational systems of tourist area use. <ul style="list-style-type: none"> <li>❖ Designate new tourist sites to allow for rotational site use and to reduce the pressure on existing sites.</li> </ul> </li> <li>❖ Temporary/ seasonal site closure.</li> <li>❖ Restrictions on tourist numbers/ tour boat numbers.</li> <li>❖ Regulate diving and snorkeling activities in the RISL to reduce site congestion, reduce damage to corals and other marine organisms, and increase site safety. <ul style="list-style-type: none"> <li>❖ Assign scuba certification levels for key dive sites.</li> <li>❖ Establish regulations protecting manta feeding/cleaning zones of high aggregation.</li> </ul> </li> <li>❖ Control fish feeding activities. <ul style="list-style-type: none"> <li>❖ Limit fish feeding sites.</li> <li>❖ Control the amount and type of food given.</li> </ul> </li> <li>❖ Develop regulations regarding visitor behavior at cultural and historical sites.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Create and enforce guidelines for future development/construction of tourist facilities, including energy use and supply.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Review and strengthen regulations to strictly control any future development in the RISL, in accordance with the zones.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Officially designate a Special Management Zone (SMZ) within the RISL which includes the sand mining operation site, aquaculture sites, and Dolphins Pacific. <ul style="list-style-type: none"> <li>❖ Regulate and control development within the Special Management Zone.</li> <li>❖ Work with Environmental Quality Protection Board to establish strict controls and no-expansion limits for the current sand mining operation within the SMZ.</li> <li>❖ Establish a minimum water quality standard for the SMZ.</li> <li>❖ Establish measures to mitigate the impacts of activities that violate the minimum water quality standards, including fines.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ For all areas in the RISL outside of the SMZ development will be strictly controlled and limited to the construction of low-impact facilities. <ul style="list-style-type: none"> <li>❖ Work with the Department of Public Works to create guidelines for construction and building of small scale facilities in the RISL.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Create a Koror State reporting system and review process for all proposed development activities in Koror State.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Work with relevant departments to ensure that development in Koror is in adherence with regulations and the Environmental Impact Assessment (EIA) process.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Establish regulations for vessels entering and mooring/mooring in Koror State waters. <ul style="list-style-type: none"> <li>❖ Create partnerships with relevant agencies to manage visitor boat numbers/traffic and improve existing regulations for motorboat registration.</li> </ul> </li> </ul>

❖ Create waste disposal regulations and fees.
❖ Establish and promote regulations for anchoring to reduce the loss and degradation of coral reefs.
❖ Work with the National Government to develop a State boat operator's license.
❖ Work with Division of Transportation, Marine Law and other National Government departments to define boat channels and/ or implement speed restrictions in areas that have high boat activity, diving/snorkeling activities occur, are ecologically significant or sensitive.
❖ Develop and implement comprehensive water safety regulations for Koror State to increase the safety and quality of all water activities and tours in the Management Area.
❖ Review and update the effectiveness of current regulations relating to management in the RISL, including but not limited to: <ul style="list-style-type: none"> <li>❖ Fishing license.</li> <li>❖ Rock Island Conservation Act.</li> <li>❖ Amend Koror State Public Law No. K6-121-2001 regarding the monetary value of damage to coral reef ecosystems located in Koror State's Waters, to include the use of settlement funds to cover legal costs and site restoration efforts (if required), and develop regulations to enforce the act.</li> <li>❖ Amend boating regulations and licensing.</li> <li>❖ Municipal ordinance 49/69.</li> <li>❖ Amend the curfew law.</li> <li>❖ Amend the air rifle regulations.</li> <li>❖ Amend photo permit legislation.</li> </ul>
❖ Identify gaps/weakness in current regulations and work to create new legislation and regulations, including but not limited to: <ul style="list-style-type: none"> <li>❖ Create a mandate requiring that all research in the RISL is reported to a centralized database within Koror State Government, and recommendations are provided to help inform management.</li> <li>❖ Create procedural guidelines for dealing with emergency situations.</li> <li>❖ Create regulations that state that all commercial activities carried out in the RISL must be permitted by Koror State.</li> </ul>
❖ Identify where there are exemptions to the regulations, and ensure that there are strict guidelines where this applies. For example: <ul style="list-style-type: none"> <li>❖ Ensure that all harvesting of timber in the RISL in cases exempted from the ban (i.e. for cultural purposes) are approved by the Traditional Leadership and Koror State Government and follow established guidelines. <ul style="list-style-type: none"> <li>❖ Establish formal procedures between State and traditional leaders for the harvesting of timber.</li> </ul> </li> </ul>

**Table 9. Enforcement and Surveillance Activities**

<b>Enforcement and Surveillance</b>
<ul style="list-style-type: none"> <li>❖ Create enforcement and monitoring programs to ensure that tour operators are in compliance with regulations.                             <ul style="list-style-type: none"> <li>❖ Create a fine system for non-compliance to regulations and negative practices.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Review the effectiveness of enforcement and surveillance activities. Maintain all effective enforcement activities, and where regulations are not being adhered to, assess strategies to improve enforcement.                             <ul style="list-style-type: none"> <li>❖ Full implementation of Ngemelis Outpost and replication at other sites.</li> <li>❖ Establish a database for boat registration/visiting vessels, citations, aquaculture, and research permits.</li> <li>❖ Establish a secure VHF channel.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Work with other states which share boundaries with Koror State to develop regulations to protect important cross- border areas, such as the German Channel, by coordinating and supporting enforcement of regulations in Koror and neighboring state waters.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Improve the capacity of Koror State Conservation and Law Enforcement to carry out enforcement and surveillance activities.                             <ul style="list-style-type: none"> <li>❖ Review and improve the training of State Rangers.</li> <li>❖ Ensure adequate staffing and technical support.                                     <ul style="list-style-type: none"> <li>❖ Ensure adequate capacity so that other commitments, such as monitoring community events, do not interfere with operational capabilities within the RISL.</li> </ul> </li> <li>❖ Deputize select Rangers to enhance enforcement authorities where needed.</li> <li>❖ Establish Standard Operating Procedures (SOPs).</li> <li>❖ Establish a department-wide staff ranking system.</li> <li>❖ Ensure necessary equipment (such as GPS, cameras, scuba gear) are acquired, and expand facilities.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>❖ Develop procedures for permitting processes and exemptions (e.g. visitor permits, filming permits).</li> </ul>

**Table 10. Education and Communication Outreach Activities**

<b>Education and Communication Outreach</b>
<ul style="list-style-type: none"> <li>❖ Implement a public awareness campaign to promote the importance and benefits of protected areas for the community, to ensure greater compliance and effectiveness of these conservation areas.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Develop outreach and education programs to increase awareness of all regulations relating to plants and animals of the Rock Islands.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Publicize harvesting regulations and conservation areas, including through the internet, brochures, posters, maps, newspaper, radio, television, and presentations and signs on docks or other public places.</li> </ul>
<ul style="list-style-type: none"> <li>❖ Develop and implement targeted awareness and education programs for resource users (including tourists) to increase their knowledge and understanding of the importance of fish resources and the reasons for regulations and restrictions,</li> </ul>

particularly focusing on the benefits of no-take zones to fisheries.
❖ Develop and implement communication outreach on efforts to rehabilitate village sites.
❖ Develop awareness materials/education programs for the RISL, including the sharing of oral traditions collected from the RISL.
❖ Implement outreach activities (radio, TV, community activities etc) in partnership with established programs by partners such as PCS, PVA, PICRC, BNM.
❖ Expand on existing youth and school programs to include more activities and information related to the RISL's cultural value.
❖ Work with relevant organizations to publicize tourist activity areas and regulations, including user fee information, through brochures, maps, posters, radio, and television.
❖ Work with Palau Conservation Society to develop educational and awareness material for tourists and locals explaining the environmental and cultural significance of the Rock Islands-Southern Lagoon Area and how they can help protect it. <ul style="list-style-type: none"> <li>❖ Develop a litter awareness campaign to encourage all visitors to the RISL to reduce the amount of trash they produce and take all trash with them when they leave, including food scraps and cigarette butts.</li> </ul>
❖ Develop interpretive and other signage in the Palauan and English languages to educate and inform visitors about the site and appropriate behavior within the site.
❖ Develop an education and outreach program to increase awareness about BMPs for local recreational use of the RISL and the importance of respectful site use.
❖ Identify organizations which will be implementing specific activities, and engage them to carry out required tasks. <ul style="list-style-type: none"> <li>❖ Establish Memorandum of Agreement (MOAs) with organizations involved in the implementation of activities.</li> </ul>
❖ Strengthen the partnership with key organizations which will be instrumental in the long-term management of the RISL.
❖ Work to strengthen the communication between internal and external key partners, including the sharing of key information/data. <ul style="list-style-type: none"> <li>❖ Work to develop and maintain a database for all information relevant to the RISL.</li> </ul>
❖ Create a website dedicated to the RISL to allow for the effective sharing of information, including visitor information, reports, regulations and zones, maps, links to partners, and ongoing projects.
❖ Strengthen the relationship with tour operators, including: <ul style="list-style-type: none"> <li>❖ Continue to strengthen communication and cooperation between Koror State and tour-operators through regular meetings, and liaison with tourism related agencies/bodies.</li> </ul>
❖ Strengthen the relationship with fisheries co-operatives and fishermen associations.
❖ Identify key stakeholders/ resource users for the RISL, and work to include them in the management process. <ul style="list-style-type: none"> <li>❖ By 2014 involve identified stakeholders in the 2 year review process/ community consultation.</li> </ul>
❖ Establish a UNESCO World Heritage Site visitor information kiosk and displays, integrated as part of existing visitor centers (BNM, PICRC).

## **Current Administration and Coordination of the RISL Management Area**

The Traditional Leaders of Koror and the Koror State Government are responsible for and have jurisdiction over the entire RISL Management Area. The Koror State Department of Conservation and Law Enforcement (KSDCLE), founded in 1994, is responsible for day-to-day management and coordination of activities within the RISL, as well as enforcing all State laws. The department consists of trained rangers that are responsible for law enforcement and surveillance, a Rock Islands Facelift Program, locally known as the “Beach Boys Program”, which is responsible for maintaining the tourist activity areas in the RISL, and a Coastal Resources Management Office.



Koror State Department of Conservation and Law Enforcement.

The department currently has 53 staff: the Director; a coastal resources manager; a Rock Islands development officer; 22 rangers; 14 beach boys; 2 conservation officers; 7 security staff; 2 mechanics; and 3 administrative staff. The staff are located in two offices: the ranger station at Malakal, and the coastal resources management office in the State Capital Building.

In order to effectively implement and co-ordinate the increased management efforts that this plan details, the capacity of Koror State needs to be developed, which is addressed in Goal 5 of this Management Plan.

## **Partner Organizations and Departments**

The effective implementation of the RISL Management Plan will depend upon the involvement and co-operation of numerous partnering departments and organizations. KSDCLE will need to work to strengthen existing collaborations and develop new partnerships. The department will need to work to support and co-ordinate the implementation of activities, and ensure that partners are capable of implementing the activities for which they are responsible within the given time frame. The effective co-operation of partners, and therefore the effective management of the RISL, will require concerted efforts to strengthen effective communication. Activities within Goal 5 address these needs.

There are many management activities within the plan that will be primarily implemented by external organizations, such as the research components (see Table 4; list of external partners responsible for implementation of activities). Some partners will be involved in very limited and specific activities, whereas others, such as the Palau International Coral Reef Center (PICRC), will be key partners that will be involved in managing the RISL in the long-term. Koror State recognizes that some partners will need help to be able to fulfill their responsibilities under this Management Plan, and will have to work closely with those organizations to build their capacity. For activities where several partnering organizations are involved, such as some of the marine research involving the Palau International Coral Reef Center, the Coral Reef Research Foundation, and the Bureau of Marine Resources, it will be important to co-ordinate all efforts. Koror State will be promoting the creation of collaborative working groups for such activities, so that communication is clear and organizations can effectively work together.

Whilst the KSDCLE is primarily responsible for the implementation of the plan, other Koror State departments will be involved or take the lead in implementing specific activities (see Table 11; list of Koror State Departments responsible for implementation of activities). Koror State Department of State and Cultural Affairs will lead management activities under Goal 3, Cultural and Historical Preservation. Koror State will also need to work closely with other states, and with various National Government ministries and divisions, particularly in regards to issues which are cross-jurisdictional and are nationally significant (see Table 11; list of external partners responsible for implementation of activities).

### **Koror State Departments responsible for implementation of activities**

Department of Finance

KSDSCA (Koror State Department of State and Cultural Affairs)

KSDCLE (Koror State Department of Conservation and Law Enforcement)

KSDPW (Koror State Department of Public Works)

KSL (Koror State Legislature)

KSPLA (Koror State Public Land Authority)

Koror Traditional Leaders

Legal Counsel

Office of the Governor

### **External partners responsible for implementation of activities**

AG (Attorney General)  
Aimeliik State Government  
Airai State Government  
BAC (Bureau of Arts and Culture)  
BMR (Bureau of Marine Resources)  
BNM (Belau National Museum)  
BPS (Bureau of Public Safety)  
BTA (Belau Tourism Authority)  
Bureau of Agriculture  
Chamber of Commerce  
CIP (Capital Improvement Project)  
CRRF (Coral Reef Research Foundation)  
Division of Environmental Health  
Division of Fish and Wildlife  
Division of Immigration  
Division of Marine Law Enforcement  
Division of Transportation and Communication  
Dr. Joel Miles  
Engineers  
EQPB (Environmental Quality Protection Board)  
Fishermen's associations  
Mandy Etpison  
MNRET (Ministry of Natural Resources, Environment and Tourism)  
Ministry of Education  
Ministry of Justice  
Ministry of State  
Ministry of Health  
Office of Environmental Response Co-ordination (OERC)  
PALARIS (Palau Automated Land and Resource Information System)  
Palau Clam Association  
PCC-CRE (Palau Community College – Co-operative Research and Extension)  
Peleliu State Government  
PICRC (Palau International Coral Reef Centre)  
President of the Republic of Palau  
PSFA (Palau Sports Fishing Association)  
PVA (Palau Visitors Authority)  
Ron Leidich  
Seabees  
The Environment Inc.  
TNC (The Nature Conservancy)  
Tour operators  
Tri-org (BTA, PVA and Palau Chamber of Commerce)  
US Navy  
Water Sewer Corporation

**Table 11. Roles, responsibilities and partnerships for the implementation of activities.**

Objective	Action	Responsibility: Koror State Government (KSG) or partner (P)	Lead KS department	Partnering agencies
<b>Goal 1: Biodiversity/Natural System Health Enhancement</b>				
By 2015 surveys of valuable food fish in the RISL are conducted.	Conduct survey of valuable food fish species, including fish habitats. <ul style="list-style-type: none"> <li>❖ Focus on highlighting critical, high diversity and degraded habitats.</li> <li>❖ Focus on fish spawning aggregations.</li> </ul>	<b>P</b>		PICRC, PALARIS, CRRF
	Work with Bureau of Marine Resources and fishermen’s associations to identify traditionally known important habitats.	<b>KSG, P</b>	KSDCLE, Koror Traditional Leaders	BMR, TNC, fishermen’s associations
By 2016 management in the RISL is informed by data, such as the findings and recommendations of the fish surveys and monitoring of existing MPAs.	Develop specific action plans for habitats showing degradation or poor health.	<b>KSG</b>	KSDCLE	
	Develop specific action plans for identified critical habitat, including fish spawning aggregation sites.	<b>KSG</b>	KSDCLE	
	Continue monitoring of species health and abundance at Marine Protected Area monitoring sites to assess the effectiveness of protected areas.	<b>P</b>		PICRC, CRRF
By 2016 biological baseline data within the RISL has been developed, focusing on key terrestrial and marine species.	By 2015 create a database of all relevant scientific knowledge about the RISL to identify critical knowledge gaps and use existing data to inform policy.	<b>KSG, P</b>		PALARIS, BNM
	Conduct turtle nesting and population surveys.	<b>KSG, P</b>	KSDCLE	BMR, PCS
	Conduct dugong habitat survey.	<b>P</b>		BMR, CRRF, Mandy Etpison
	Conduct survey of sea cucumber populations.	<b>P</b>		BMR, PICRC
	Conduct bird diversity survey in the RISL.	<b>P</b>		BNM
	Conduct vegetation survey in the RISL.	<b>P</b>		Bureau of Agriculture
	Conduct ant diversity survey in the RISL.	<b>P</b>		BNM
	Continue monitoring and surveys of marine lakes, including monitoring of invasive species, pollution and weather.	<b>P</b>		CRRF
By 2015 the effectiveness of protected areas in the RISL has been strengthened, by creating new Conservation Areas,	Establish a “wildlife preserve” at Kmekumer Islands for the protection of Hawksbill nesting beaches, nesting turtles and eggs.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	BMR
	Establish a protected area for known spawning site for kemedukl (humphead parrot fish).	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	PICRC, CRRF

and promoting the importance of protected areas to the community.	Implement a public awareness campaign to promote the importance and benefits of protected areas for the community, to ensure greater compliance and effectiveness of these conservation areas.	<b>KSG, P</b>	KSDCLE	Rare
By 2016 strategies have been developed to enhance the resilience of ecosystems in the RISL to climate change.	Continue and expand research on key stresses/ threats from climate change.	<b>P</b>		PICRC, CRRF
	Conduct research into the resilience of ecosystems to climatic stressors.	<b>P</b>		PICRC, TNC
	Conduct research to assess current non-climatic stresses and threats to ecosystems, and conduct vulnerability assessments.	<b>P</b>		PICRC
	Create action plans to reduce identified non-climatic stresses, to enhance ecosystem resilience.	<b>KSG, P</b>	KSDCLE	PICRC
	Identify best management practices (BMPs) for dealing with shoreline erosion in other similar ecosystems, and investigate the feasibility of implementing action plans based on these BMPs.	<b>KSG, P</b>	KSDCLE	EQPB, CRRF, CIP, engineers, OERC
	Continue support of the long-term program to monitor shoreline erosion.	<b>KSG</b>	KSDCLE, KSDPW	
By 2016 strategies and plans have been developed and implemented to prevent the establishment of new terrestrial or marine invasive species, and reduce the distribution and area covered by existing invasive species in the RISL.	Develop and begin implementation of a comprehensive and practical biosecurity (prevention and rapid response) plan for the RISL.	<b>KSG, P</b>	KSDCLE	Bureau of Agriculture, The Environment Inc., Dr. Joel Miles
	Conduct survey of major invasive terrestrial species to assess priority problems.	<b>KSG, P</b>	KSDCLE	Bureau of Agriculture, The Environment Inc., Dr. Joel Miles
	Assess and regularly monitor the distribution and area covered by invasive plant species on the Rock Islands.	<b>P</b>		Bureau of Agriculture, Dr. Miles,
	Develop opportunistic monitoring and response plan for identified marine invasives.	<b>P</b>		CRRF, PICRC, tour operators
	Develop and implement programs to manage/control priority invasive species in the RISL, including reporting systems and response strategies.	<b>KSG, P</b>		PCS, Bureau of Agriculture, Dr. Miles, BMR, National Invasive Species Committee
	Continue efforts to control the populations of Crown of Thorns Starfish within the RISL.	<b>KSG</b>	KSDCLE	Ron Leidich, Tour operators
	Train the rangers and beach boys to identify and remove invasive terrestrial plant species, particularly from tourist areas and areas around picnic huts.	<b>KSG, P</b>	KSDCLE	Tour operators, BOA, Dr. Joel Miles
	Continue rat control programs in the RISL to reduce rat populations.	<b>KSG, P</b>	KSDCLE	Division of Environmental Health, PCS
	Remove invasive plant species from the RISL and regularly re-visit areas to monitor for and remove new growth.	<b>KSG</b>	KSDCLE, KSDPW Cheldebechel of Koror, Scout program, KSDSCA	

	Develop outreach and education programs to increase awareness of all regulations relating to plants and animals of the Rock Islands.	<b>KSG, P</b>	KSDCLE	PCS
<b>Goal 2: Subsistence and Commercial Fisheries Improvement</b>				
<p>➤ Ensure fisheries are sustainable by decreasing overall fishing pressure in the RISL.</p> <ul style="list-style-type: none"> <li>• By 2016 Koror State Government has developed the institutional capacity to manage and regulate fisheries.</li> <li>• By 2016 subsistence and commercial fishing and other extractive activities in the RISL are guided by zones and associated regulations.</li> </ul>	Develop/enhance regulations for subsistence, customary and commercial harvesting of fish and invertebrates in the appropriate zones.	<b>KSG</b>	KSDCLE	
	❖ Develop harvesting restrictions for giant clams (e.g. through size and bag limits, moratorium on some species).	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	BMR
	❖ Develop State regulations for fishing gear and practices (e.g. net types) to address gaps in National regulations.	<b>KSG, P</b>	KSDCLE, Office of the Governor, KSL	Division of Fish and Wildlife, fishermen's associations
	❖ Develop fishing regulations for tourists, which limits visitors to only catch and release, or a separate permit for sports fishing/derbies.	<b>KSG, P</b>	KSDCLE, Office of the Governor, KSL	Division of Fish and Wildlife, BMR
	Develop a Fisheries Impact Assessment (FIA) procedure for Koror State.	<b>KSG, P</b>	KSDCLE, KSL, Legal Counsel	EQPB, BMR
	Create fisheries zones in the RISL.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	PICRC, BMR, CRRF
	❖ Designate invertebrate no-harvesting zones in the RISL.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	PICRC, BMR, CRRF
	❖ Designate a tourists' fishing zone to limit the impacts by visitors.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	PICRC, BMR, CRRF
	❖ Create clear no-take zones informed by the findings of the fish surveys and other information on critical/breeding habitat.	<b>KSG, P</b>	KSDCLE	PSFA, PICRC, BMR
	Create guidelines for fishing tournaments, including exemptions to the usual zones.	<b>KSG, P</b>	KSDCLE	PSFA, BMR
	Strengthen the regulations on commercial fishing within the reef, including the ban on foreign-owned fishing businesses and joint-commercial fishing ventures with foreign fishermen.	<b>KSG, P</b>	KSDCLE	BMR, PSFA
	Publicize harvesting regulations and conservation areas, including through the internet, brochures, posters, maps, newspaper, radio, television, and presentations and signs on docks or other public places.	<b>KSG, P</b>	KSDCLE	PCS, PSFA, Tri-org

	Develop and implement targeted awareness and education programs for resource users (including tourists) to increase their knowledge and understanding of the importance of fish resources and the reasons for regulations and restrictions, particularly focusing on the benefits of no-take zones to fisheries.	<b>KSG, P</b>	KSDCLE	PSFA, Tri-org, PCS
By 2016 best management practices for key species are developed, including sustainable harvest rates and reseeded programs.	Partner with relevant agencies to undertake research into sustainable harvest levels, focusing on: <ul style="list-style-type: none"> <li>• Catch Per Unit Effort (CPUE) over time.</li> <li>• Size and abundance of fish populations.</li> </ul>	<b>P</b>		PICRC, BMR, TNC, PSFA
	Investigate the feasibility and/or effectiveness of reseeded programs for key species such as rabbit-fish, trochus and/or grouper.	<b>KSG, P</b>	KSDCLE	PCC-CRE, BMR
	Create a reseeded program for giant clams.	<b>KSG, P</b>	KSDCLE	BMR, Palau Clam Association
	Create guidelines for captive breeding programs supplying reseeded stock, to prevent negative genetic impacts.	<b>KSG, P</b>	KSDCLE	PCC-CRE, BMR
By 2016 aquaculture projects are in accordance with Koror State Government aquaculture zones and regulations.	Legislature passes law to adopt aquaculture zone/s in the RISL to contain aquaculture within existing areas.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	Assess the number and status of existing aquaculture sites.	<b>KSG, P</b>	KSDCLE	EQPB
	Develop aquaculture regulations for Koror State.	<b>KSG</b>	KSDCLE, KSL	
	❖ By 2016 regulations have been developed which cap the number of aquaculture sites and enterprises within the RISL.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	❖ Regulate the species which can be cultured.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	❖ Ensure aquaculture projects are in accordance with state regulations.	<b>KSG</b>	KSDCLE, Department of Finance, Legal Counsel	
	❖ Develop water quality standards.	<b>KSG, P</b>	KSDCLE	EQPB
	❖ Make it a requirement for all new aquaculture projects to undergo an FIA before approval.	<b>KSG, P</b>	KSDCLE, Office of the Governor	BMR
	Work with the Environmental Quality Protection Board to ensure consistent water quality monitoring of the aquaculture sites.	<b>P</b>		EQPB
Create guidelines that require aquaculture enterprises to be self-regulating industries.	<b>KSG, P</b>	KSDCLE, KSL	EQPB, BMR	

<b>Goal 3: Cultural and Historical Preservation</b>				
By 2014 Koror State Government has developed a program for protecting and rehabilitating cultural sites and features in the RISL, including the creation of a State registry, and the development of protocols and plans.	Establish a Koror State registry for all cultural sites and features, and establish a timeline for the inclusion of cultural sites/features in the RISL.	<b>KSG, P</b>	KSDSCA	BAC
	Establish a timeline for the inclusion of the remaining unregistered cultural sites/features in the RISL into the National registry.	<b>KSG, P</b>	KSDSCA	BAC
	Work with Bureau of Arts and Culture to develop protocols and plans for maintaining and rehabilitating cultural sites.	<b>KSG, P</b>	KSDSCA	BAC
By 2016 at least three village sites that are in critical need of care or rehabilitation have been identified and a plan for their rehabilitation developed.	Conduct survey to assess village sites and prioritize for rehabilitation.	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	BAC
	Koror State Department of State and Cultural Affairs to work with Bureau of Arts and Culture to develop a rehabilitation plan for each site, and build capacity to implement the plans.	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	BAC
	Develop and implement communication outreach on efforts to rehabilitate village sites.	<b>KSG, P</b>	KSDSCA	PCS
By 2015 50% of the traditional cheldebechel of Koror have access to information on and value the importance of the RISL to Koror's cultural heritage.	Conduct social survey in 2013 to gauge awareness about the RISL's cultural value (partner with organizations such as Palau Conservation Society to conduct this survey).	<b>KSG, P</b>	KSDSCA	PCS
	Work with Bureau of Arts and Culture to collect documented oral traditions within the RISL.	<b>KSG, P</b>	KSDSCA	PCS
	Develop awareness materials/education programs for the RISL, including the sharing of oral traditions collected from the RISL.	<b>KSG, P</b>	KSDSCA	PCS
	Implement outreach activities (radio, TV, community activities etc) in partnership with established programs by partners such as PCS, PVA, PICRC, BNM.	<b>KSG, P</b>	KSDSCA	PCS, PVA, PICRC, BNM
	Incorporate cultural traditional place names and species names into maps, signage and everyday use to revive the traditional bond to places (as opposed to foreign/ English names currently used).	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	BAC, BTA
	❖ Work with traditional leaders to document place names and create new names for areas where names may not exist.	<b>KSG, P</b>	KSC, Koror Traditional Leaders	BAC
	❖ Work with key stakeholders to consider a revision of the name of the RISL, to reflect cultural values, and a name that is Palauan.	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	BAC, BTA
	Expand on existing youth and school programs to include more activities and information related to the RISL's cultural value.	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	PCS, PCC, Ministry of Education, BAC

	Conduct social survey in 2015 to assess if people's awareness about the RISL's cultural value has increased.	<b>KSG, P</b>	KSDSCA	PCS
By 2014 Koror State Government has developed a program for protecting and preserving historical relics/ sites in the RISL (i.e. WWII relics), including the creation of a State registry, and the development of protocols and plans.	Establish a Koror State registry for all historical relics and sites, and develop a timeline for the registration of key historical sites.	<b>KSG, P</b>	KSDSCA, Office of the Governor, KSL	BAC
	Conduct survey to identify key historical sites and their current state, including the presence of any unexploded ordnance from WWII sites.	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	BAC
	Develop a plan to preserve and or/ increase the safety of the RISL's historic sites, including:	<b>KSG, P</b>	KSDSCA, KSDCLE	BAC, BPS and AG
	❖ Arrange for the removal of unexploded ordnance from WWII sites.	<b>KSG, P</b>	KSDCLE	National and regional partners
	❖ Develop guidelines so that any work done by outside organizations/ Governments is done with prior Koror State approval, and information is reported back.	<b>KSG</b>	KSDCLE, KSDSCA, Koror Traditional Leaders	BAC, BNM, BMR, PICRC, CRRF, President of the Republic of Palau
	Co-ordinate with the office of the President of the Republic of Palau to secure the return to Koror State historic era properties that are controlled through the Lagoon Marine Protection Act.	<b>KSG, P</b>	KSDSCA	BAC, President of the Republic of Palau
By 2016, a section depicting RISL and Koror State cultural traditions and historic era is established at the Belau National Museum.	Koror State work with Belau National Museum to create the capacity and space to develop a section dedicated to the RISL at the museum.	<b>KSG, P</b>	KSDSCA, KSDCLE	BNM, BAC
	Koror State Department of State and Cultural Affairs to work with the Belau National Museum and other relevant agencies to gather information, stories and pictures about the cultural traditions and historic era in the RISL, and create exhibits.	<b>KSG, P</b>	KSDSCA, Koror Traditional Leaders	BNM, BAC,
<b>Goal 4: Tourism, Recreation, and Economic Enhancement</b>				
➤ Enhance tourism guidelines and regulations and ensure that tour operators and tour guides are in compliance with these. • By 2015 all tour operators are familiar with and are implementing tours according to the tour guide certification program.	Implement tour guide certification program by 2013.	<b>KSG, P</b>	KSDCLE	PCC, Tri-org
	Create a staff position within Koror State dedicated to tourism, responsible for the tour guide certification program, the enforcement of regulations and guidelines, liaison with tour operators, and the development of new tourism ventures.	<b>KSG</b>	KSDCLE, Office of the Governor	
	Review and enhance tourism regulations, guidelines and standards.	<b>KSG, P</b>	KSDCLE	Tri-org
	Make it a requirement that all tour guides have adequate English and/or Palauan language skills.	<b>KSG, P</b>	KSDCLE, KSL	BTA, Ministry of Education

	❖ All tour guides must pass a standard language test as part of the tour guide certification program.	<b>KSG, P</b>	KSDCLE	BTA, Ministry of Education
	Conduct survey in 2015 of current tour operators and tour guides to assess awareness and adherence to tourism guidelines	<b>KSG, P</b>	KSDCLE	BTA
	Create enforcement and monitoring programs to ensure that tour operators are in compliance with regulations.	<b>KSG</b>	KSDCLE	
	❖ Create a fine system for non-compliance to regulations and negative practices.	<b>KSG</b>	KSDCLE, KSL, Department of Finance, Legal Counsel	
	Create an incentive program, including an award system, for tour operators to reward good operating practices.	<b>KSG, P</b>	KSDCLE	BTA, COC, PVA
	❖ Explore feasibility of developing a special ‘eco-friendly operator accreditation’ to reward environmentally conscious operations, including restaurants that comply with wildlife regulations (with any breach of regulations resulting in loss of accreditation).	<b>KSG, P</b>	KSDCLE	BTA, COC, PVA, Division of Fish and wildlife
	Work with relevant organizations to publicize tourist activity areas and regulations, including user fee information, through brochures, maps, posters, radio, and television.	<b>KS, P</b>	KSDCLE	PCS, BTA, TRI-ORG
By 2016 tour operation guidelines and plans to ensure sustainable and low impact tourism have been developed.	Develop guidelines and regulations which minimize visitor impacts on tourist sites including:	<b>KSG</b>	KSDCLE, KSL, Office of the Governor, KSDPW	
	❖ Rotational systems of tourist area use.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	Tri-Org, Tour operators
	❖ Designate new tourist sites to allow for rotational site use and to reduce the pressure on existing sites.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	Tri-Org, Tour operators
	❖ Temporary/ seasonal site closure.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	Tri-Org, Tour operators
	❖ Restrictions on tourist numbers/ tour boat numbers.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	Tri-Org, Tour operators
	❖ Regulate diving and snorkeling activities in the RISL to reduce site congestion, reduce damage to corals and other marine organisms, and increase site safety.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	Tri-Org, Tour operators

	❖ Assign scuba certification levels for key dive sites.	<b>KSG, P</b>	KSL, Office of the Governor	BTA, tour operators
	❖ Establish regulations protecting manta feeding/cleaning zones of high aggregation.		KSL, Office of the Governor	
	❖ Control fish feeding activities.	<b>KSG, P</b>	KSL, Office of the Governor, Department of Finance	Tour operators, Division of Fish and Wildlife, BMR
	❖ Limit fish feeding sites.		KSL, Office of the Governor	
	❖ Control the amount and type of food given.			
	❖ Develop regulations regarding visitor behavior at cultural and historical sites.	<b>KSG, P</b>	KSL, Office of the Governor	Tri-Org, Tour operators
	Partner with relevant agencies to conduct environmental surveys/ research to assess:	<b>KSG, P</b>	KSDCLE	PICRC, CRRF
	❖ Environmental impacts of tourism in the RISL.	<b>KSG, P</b>	KSDCLE	PICRC, CRRF
	❖ Conduct regular monitoring of key dive sites to assess long-term impacts from divers and snorkelers. ❖ Conduct research into tourist use and impacts of tourists at Jellyfish Lake.	<b>KSG, P</b>	KSDCLE	PICRC, CRRF
	❖ Support research to determine the impacts of diver disturbance on fish spawning activities.	<b>KSG, P</b>	KSDCLE	PICRC, CRRF
	❖ Carrying capacity of sites.	<b>KSG, P</b>	KSDCLE	PICRC, CRRF
	❖ Seasonal vulnerability of important species within sites.	<b>KSG, P</b>	KSDCLE	PICRC, CRRF
	Continue socio-economic surveys of tourism use in the RISL.	<b>KSG, P</b>	KSDCLE	PICRC
	Create and enforce guidelines for future development/construction of tourist facilities, including energy use and supply.	<b>KSG, P</b>	KSDCLE, KSDPW Office of the Governor	BAC, EQPB
	Ensure newly developed tourist sites are multi-purpose, to limit the number of new sites needed, thereby limiting the impact of development in the RISL.	<b>KSG, P</b>	KSDCLE	BTA
	❖ E.g. Develop new cultural sites in conjunction with new bird-watching tourism.			
	Work with relevant agencies to develop educational and awareness material for tourists and locals explaining the environmental and cultural significance of the Rock Islands-Southern Lagoon	<b>KSG, P</b>	KSDCLE	PCS, PVA, BAC, BTA, PVA

	Area and how they can help protect it.			
	❖ Develop a litter awareness campaign to encourage all visitors to the RISL to reduce the amount of trash they produce and take all trash with them when they leave, including food scraps and cigarette butts.	<b>KSG, P</b>	KSDCLE	PCS, PVA, BTA, Tour operators
<p>➤ Strengthen and enhance the cultural aspect of Koror State's RISL visitor experience.</p> <ul style="list-style-type: none"> <li>•By 2015 the cultural heritage of at least three tourism sites have been identified and developed as part of the RISL visitor experience.</li> <li>•By 2015 cultural heritage training for tour guides has been developed and incorporated into the tour guide certification program.</li> <li>•By 2016 at least 25% of tour operators in the RISL have integrated traditional cultural resource tours into their tour programs.</li> </ul>	Identify cultural sites to be tourist attractions.	<b>P</b>	KSDSCA, KSDPW	BAC, BTA
	Build infrastructure to support visitors.	<b>KSG</b>	KSDPW	
	Koror State Department of State and Cultural Affairs to develop cultural heritage tourism guidelines and training.	<b>KSG, P</b>	KSDSCA	BAC, BTA, BNM
	Koror State Department of State and Cultural Affairs to develop cultural site maintenance plan.	<b>KSG, P</b>	KSDSCA, KSDPW	BAC
	❖ Locate visitor arrival points and facilities away from the immediate environs of cultural sites to minimize site degradation from trash dumping, foot traffic and the construction and maintenance of tourist structures.	<b>KSG, P</b>	KSDSCA, KSDPW	BAC, BTA
	Develop interpretive and other signage in the Palauan and English languages to educate and inform visitors about the site and appropriate behavior within the site.	<b>KSG, P</b>	KSDSCA	PCS, BTA, BNM, PVA
	Promote the importance and value of cultural heritage tours to operators.	<b>KSG</b>	KSDCLE, KSDSCA	Tri-Org
	❖ Conduct FAM tours for operators.	<b>KSG</b>	KSDCLE	
	Work with Palau Visitors Authority, Belau Tourism Authority and others to promote cultural heritage tours to visitors.	<b>KSG, P</b>	KSDCLE	Tri-Org
Conduct survey in 2016 to assess the number of tour operators which have integrated traditional cultural resource tours into their programs, and their adherence to tour guide training recommendations.	<b>KSG, P</b>	KSDCLE, KSDSCA	Tri-Org	
➤ Promote the historical aspect of Koror State's RISL	Identify historical sites/features to be tourist attractions.	<b>KSG, P</b>	KSDSCA, KSDPW	BAC

visitor experience. •By 2015, guidelines and training for tour operators have been developed concerning historical sites, and incorporated into tour guide training.	Develop historical tourism guidelines and training, and incorporate into tour guide training.	<b>KSG, P</b>	KSDSCA	BAC, Tri-Org
➤ Strengthen and enhance the natural aspect of the RISL visitor experience. •By 2016 new nature-based tourism ventures are under development, particularly regarding the opportunity to build a bird-watching tourist market.	Work with Belau National Museum and Palau Visitors Authority to develop bird-watching tourism in the RISL, including:	<b>KSG, P</b>	KSDCLE, KSDPW	BNM, Tri-Org
	❖ Tours in the RISL dedicated to bird-watching.	<b>KSG, P</b>	KSDCLE, KSDPW	BNM, Tri-Org
	❖ Tour operating guidelines and training specific to bird-watching.	<b>KSG, P</b>	KSDCLE, KSDPW	BNM, Tri-Org
	❖ An assessment of suitable sites for bird-watching.	<b>KSG, P</b>	KSDCLE, KSDPW	BNM, Tri-Org
	❖ Creation of new pathways, infrastructure, information signs, and species checklists for bird-watching sites.	<b>KSG, P</b>	KSDCLE, KSDPW	BNM, Tri-Org
	❖ Co-ordinate with Palau Visitors Authority to create tourist information dedicated to bird-watching.	<b>KSG, P</b>	KSDCLE, KSDPW	BNM, Tri-Org
➤ Maintain local resident access to the RISL and enhance the local Palauan visitor experience/ recreational use. •By 2016 facilities at key local only sites have been constructed and/ or improved. • By 2016 develop best management practices (BMPs) for local site use.	Identify new areas which could be developed as local recreational sites.	<b>KSG</b>	KSDCLE	
	Assess the accessibility and quality of facilities at local only sites, and develop a plan to construct and/or improve site facilities where necessary.	<b>KSG</b>	KSDCLE, KSDPW	
	Develop BMPs for local site use including:	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	❖ Waste disposal.	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	❖ Facilities use.	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	❖ Regulations on what can be brought in and out (i.e. no plants and animals to be brought in).	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	❖ Interactions with wildlife.	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	❖ Anchoring and mooring of boats.	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	❖ Community maintenance and renovations, including the development of an “Adopt a beach” program.	<b>KSG, P</b>	KSDCLE, KSDPW, KSPLA, KSL	EQPB, Division of Environmental Health
	Develop an education and outreach program to increase awareness about BMPs for local recreational use of the RISL and the importance of respectful site use.	<b>KSG</b>	KSDCLE	

By 2016, develop and enhance regulations and monitoring to ensure that development in the RISL Management Area is strictly controlled, while allowing necessary infrastructure to support better management of the area.	Review and strengthen regulations to strictly control any future development in the RISL.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	Officially designate a Special Management Zone (SMZ) within the RISL which includes the sand mining operation site, aquaculture sites, and Dolphins Pacific.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	EQPB
	❖ Regulate and control development within the Special Management Zone.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	❖ Work with Environmental Quality Protection Board to establish strict controls and no-expansion limits for the current sand mining operation within the SMZ.	<b>KSG, P</b>	KSDCLE, KSL, Office of the Governor	EQPB
	❖ Establish a minimum water quality standard for the SMZ.	<b>KSG, P</b>	KSDCLE	EQPB
	❖ Establish measures to mitigate the impacts of activities that violate the minimum water quality standards, including fines.	<b>KSG, P</b>	KSDCLE	EQPB
	For all areas in the RISL outside of the SMZ development will be strictly controlled and limited to the construction of low-impact facilities.	<b>KSG</b>	KSDCLE, KSPLA	
	❖ Work with the Department of Public Works to create guidelines for construction and building of small scale facilities in the RISL.	<b>KSG, P</b>	KSDCLE, KSDPW	
By 2016 develop/enhance regulations and monitoring for development in and around Koror to minimize degradation and pollution impacts in the RISL.	Create a Koror State reporting system and review process for all proposed development activities in Koror State.	<b>KSG</b>	KSDCLE, KSPLA	
	Work with relevant departments to ensure that development in Koror is in adherence with regulations and the Environmental Impact Assessment (EIA) process.	<b>KSG, P</b>	KSDCLE, KSPLA	EQPB
	Partner with relevant agencies to conduct research/monitoring into the impacts of the Malakal sewage outfall on the marine environment.	<b>P</b>		EQPB, Division of Environmental Health
	Partner with relevant agencies to conduct more detailed monitoring/research to determine the impacts of the M-dock rubbish dump on the surrounding ecosystem (plants and animals).	<b>P</b>		EQPB, Water Sewer Corporation
By 2016 regulations and guidelines have been developed to	Establish regulations for vessels entering and mooring/anchoring in Koror State waters.	<b>KSG, P</b>	KSDCLE	Division of Transportation and Communication,

ensure boating safety and minimize the impact of boating activities in RISL waters, including the mooring/anchoring of vessels.				EQPB
	❖ Create partnerships with relevant agencies to manage visitor boat numbers/traffic and improve existing regulations for motorboat registration.	<b>KSG, P</b>	KSDCLE	Division of Immigration
	❖ By 2015 conduct a socio-economic assessment on waste disposal for resident and visitor vessels.	<b>KSG</b>	KSDCLE	Division of Environmental Health, Division of Transportation and communication
	❖ Create waste disposal regulations and fees.	<b>KSG</b>	KSDCLE, KSDPW, KSPLA,	Water sewer corporation, EQPB
	Establish and promote regulations for anchoring to reduce the loss and degradation of coral reefs.	<b>KSG</b>	KSDCLE, KSL	
	Develop a formal procedure and task force (including PICRC, EQPB, AG, CRRF, States) to deal with ship groundings within the State (including legislation if necessary).	<b>KSG</b>	KSDCLE, KSL	EQPB, PICRC, AG, CRRF
	Develop a formal procedure to deal with oil spills within the State.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	Establish standard search and rescue/recovery procedures within the State.	<b>KSG, P</b>	KSDCLE	MINISTRY OF JUSTICE, Tri-Org, Ministry of Health, tour operators
	Work with the National Government to develop a State boat operator's license.	<b>KSG, P</b>	KSDCLE	Ministry of Justice Division of Marine Law Enforcement and BPS
	Work with Division of Transportation, Marine Law and other National Government departments to define boat channels and/ or implement speed restrictions in areas that have high boat activity, diving/snorkeling activities occur, are ecologically significant or sensitive.	<b>KSG, P</b>	KSDCLE	Division of Transportation and Communication, Division of Marine Law Enforcement
	Develop and implement comprehensive water safety regulations for Koror State, to increase the safety and quality of all water activities and tours in the Management Area.	<b>KSG</b>	KSDCLE	
	Identify partners to help with the removal of abandoned vessels.	<b>KSG, P</b>	KSDCLE	Ministry of State, US Navy

**Goal 5: Koror State Government Institutional Capacity Development**

By 2016, regulatory and legislative frameworks for management in the RISL have been reviewed and, where appropriate, improved.	Review and update the effectiveness of current regulations relating to management in the RISL, including but not limited to:	<b>KSG</b>	KSL, Office of the Governor, KSDCLE, KSDSCA	
	❖ Fishing license.	<b>KSG</b>	KSDCLE, Office of the Governor, KSL, Department of Finance	
	❖ Rock Island Conservation Act.	<b>KSG</b>	KSDCLE, Office of the Governor, KSL	
	❖ Amend Koror State Public Law No. K6-121-2001 regarding the monetary value of damage to coral reef ecosystems located in Koror State's Waters, to include the use of settlement funds to cover legal costs and site restoration efforts (if required), and develop regulations to enforce the act.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	❖ Amend boating regulations and licensing.	<b>KSG</b>	KSDCLE, KSL, Office of the Governor	
	❖ Municipal ordinance 49/69.	<b>KSG</b>	KSDCLE	
	❖ Amend the curfew law.	<b>KSG</b>	KSDCLE, KSL	
	❖ Amend the air rifle regulations.	<b>KSG</b>	KSDCLE, KSL	
	❖ Amend photo permit legislation.	<b>KSG</b>	KSDCLE, KSL	
	Identify gaps/weakness in current regulations and work to create new legislation and regulations, including but not limited to:	<b>KSG</b>	KSDCLE	
	❖ Create a mandate requiring that all research in the RISL is reported to a centralized database within Koror State Government, and recommendations are provided to help inform management	<b>KSG</b>	KSDCLE	
	❖ Create procedural guidelines for dealing with emergency situations.	<b>KSG</b>	KSDCLE	
	❖ Create regulations that state that all commercial activities carried out in the RISL must be permitted by Koror State.			
	Identify where there are exemptions to the regulations, and ensure that there are strict guidelines where this applies. For example:	<b>KSG</b>	KSDCLE	

	❖ Ensure that all harvesting of timber in the RISL in cases exempted from the ban (i.e. for cultural purposes) are approved by the Traditional Leadership and Koror State Government and follow established guidelines.	<b>KSG</b>	KSDCLE, Koror Traditional Leaders	
	❖ Establish formal procedures between State and traditional leaders for the harvesting of timber.	<b>KSG</b>	KSDCLE, Koror Traditional Leaders	
By 2016 the capacity of Koror State Government to effectively carry out enforcement and surveillance activities in the RISL has been enhanced.	Review the effectiveness of enforcement and surveillance activities. Maintain all effective enforcement activities, and where regulations are not being adhered to, assess strategies to improve enforcement.	<b>KSG</b>	KSDCLE	
	❖ Full implementation of Ngemelis Outpost and replication at other sites	<b>KSG, P</b>	KSDCLE	Seabees
	❖ Establish a database for boat registration/visiting vessels, citations, aquaculture, and research permits.	<b>KSG, P</b>	KSDCLE	Ministry of Immigration, Ministry of Justice
	❖ Establish a secure VHF channel.	<b>KSG</b>	KSDCLE, KSPLA	Division of Transportation and Communication
	❖ Work with other states which share boundaries with Koror State to develop regulations to protect important cross- border areas, such as the German Channel, by coordinating and supporting enforcement of regulations in Koror and neighboring state waters.	<b>KSG, P</b>	KSDCLE, Office of the Governor, KSL	Peleliu State Government, Aimeliik State Government, Airai State Government
	Improve the capacity of Koror State Conservation and Law Enforcement to carry out enforcement and surveillance activities.	<b>KSG</b>	KSDCLE	
	❖ Review and improve the training of State Rangers.	<b>KSG</b>	KSDCLE	
	❖ Ensure adequate staffing and technical support.	<b>KSG</b>	KSDCLE	
	❖ Ensure adequate capacity so that other commitments, such as monitoring community events, do not interfere with operational capabilities within the RISL.	<b>KSG</b>	KSDCLE	
	❖ Deputize select Rangers to enhance enforcement authorities where needed.	<b>KSG, P</b>	KSDCLE	Ministry of Justice

	❖ Establish Standard Operating Procedures (SOPs).	<b>KSG</b>	KSDCLE	
	❖ Establish a department-wide staff ranking system.	<b>KSG</b>	KSDCLE	
	❖ Ensure necessary equipment (such as GPS, cameras, scuba gear) are acquired, and expand facilities.	<b>KSG</b>	KSDCLE	
	Develop procedures for permitting processes and exemptions (e.g. visitor permits, filming permits).	<b>KSG</b>	KSDCLE, KSF	
By 2016, Koror State Government has worked to strengthen relationships and communication with organizations involved in the implementation of activities, and with key stakeholders/ resource users.	Identify organizations which will be implementing specific activities, and engage them to carry out required tasks.	<b>KSG</b>	KSDCLE	
	❖ Establish Memorandum of Agreement (MOAs) with organizations involved in the implementation of activities.	<b>KSG</b>	KSDCLE	
	Strengthen the partnership with key organizations which will be instrumental in the long-term management of the RISL.	<b>KSG</b>	KSDCLE	
	Work with key organizations to ensure they have sufficient capacity to carry out tasks by the dates required.	<b>KSG</b>	KSDCLE	
	Develop protocols for issues which are cross-jurisdictional and involve several departments or levels of Government.	<b>KSG, P</b>	KSDCLE, Office of the Governor	National Ministries
	Work to strengthen the communication between internal and external key partners, including the sharing of key information/data.	<b>KSG</b>	KSDCLE	
	❖ Work to develop and maintain a database for all information relevant to the RISL.	<b>KSG, P</b>	KSDCLE	PALARIS, PICRC, BNM, BMR, Bureau of Agriculture
	Create a website dedicated to the RISL to allow for the effective sharing of information, including visitor information, reports, regulations and zones, maps, links to partners, and ongoing projects.	<b>KSG, P</b>	KSDCLE	BNM
	Strengthen the relationship with tour operators, including:	<b>KSG, P</b>	KSDCLE	Tri-Org
	❖ Continue to strengthen communication and cooperation between Koror State and tour-operators through regular meetings, and liaison with tourism related agencies/bodies.	<b>KSG, P</b>	KSDCLE	Tri-Org

	❖ Work with tour-operators to develop a coral reef monitoring program to assess diver and snorkeler impacts on key dive and snorkel sites, increase environmental awareness, and strengthen relationships between the government and tourism industry.	<b>KSG, P</b>	KSDCLE	Tri-Org
	Strengthen the relationship with fisheries co-operatives and fishermen associations.	<b>KSG, P</b>	KSDCLE	BMR, fisheries co-operatives/ associations, fish markets
	Identify key stakeholders/ resource users for the RISL, and work to include them in the management process.	<b>KSG</b>	KSDCLE	
	❖ By 2013 conduct socio-economic surveys to identify key resource users and stakeholders.	<b>KSG</b>	KSDCLE	
	❖ By 2014 involve identified stakeholders in the 2 year review process/ community consultation.	<b>KSG</b>	KSDCLE	
By 2016 establish links with other management programs at a national, regional and international level to better manage the RISL.	By 2013 designate Ngerumekaol Protected Area and Ngerukewid Islands Wildlife Preserve to become part of the Protected Areas Network (PAN), and consider designating other sites to PAN.	<b>KSG</b>	KSDCLE, Office of the Governor, KSL	
	By 2013 develop the administrative capacity to meet requirements as a UNESCO World Heritage Site, including reporting.	<b>KSG, P</b>	KSDCLE	PICRC, BMR, BAC, MNRET
	❖ Coordinate with Palau International Coral Reef Center, Belau National Museum and other organizations for monitoring and reporting required by UNESCO and the World Heritage Committee and its relevant advisory bodies.	<b>KSG, P</b>	KSDCLE	PICRC, BNM, BAC
	❖ Establish a UNESCO World Heritage site visitor information kiosk and displays, integrated as part of existing visitor centers (BNM, PICRC).	<b>KSG, P</b>	KSDCLE	PICRC, BNM, BTA, PVA
	Investigate the feasibility of linking the RISL to other regional and international conservation programs.	<b>KSG</b>	KSDCLE	

## Timeline of Implementation

The timeline of implementation outlines the expected dates for implementation and completion for all activities under this Management Plan, and is designed to help managers keep to a realistic schedule (see Table 12). Managers will use this timeline to develop yearly work plans to co-ordinate activities for each of the five years of this Management Plan.

**Table 12. Timeline of Implementation of Activities.**

Objective	Action	Year of Implementation				
		2012	2013	2014	2015	2016
<b>Goal 1: Biodiversity/Natural System Health Enhancement</b>						
By 2015 surveys of valuable food fish in the RISL are conducted.	Conduct survey of valuable food fish species, including fish habitats. <ul style="list-style-type: none"> <li>❖ Focus on highlighting critical, high diversity and degraded habitats.</li> <li>❖ Focus on fish spawning aggregations.</li> </ul>					
	Work with Bureau of Marine Resources and fishermen's associations to identify traditionally known important habitats.					
By 2016 management in the RISL is informed by data, such as the findings and recommendations of the fish surveys and monitoring of existing MPAs.	Develop specific action plans for habitats showing degradation or poor health.					
	Develop specific action plans for identified critical habitat, including fish spawning aggregation sites.					
	Continue monitoring of species health and abundance at Marine Protected Area monitoring sites to assess the effectiveness of protected areas.					
By 2016 biological baseline data within the RISL has been developed, focusing on key terrestrial and marine species.	By 2015 create a database of all relevant scientific knowledge about the RISL to identify critical knowledge gaps and use existing data to inform policy.					
	Conduct turtle nesting and population surveys.					
	Conduct dugong habitat survey.					
	Conduct survey of sea cucumber populations.					
	Conduct bird diversity survey in the RISL. <ul style="list-style-type: none"> <li>❖ Emphasis on megapodes.</li> </ul>					
	Conduct vegetation survey in the RISL. <ul style="list-style-type: none"> <li>❖ Focus on rare and/or endemic species.</li> </ul>					
	Conduct ant diversity survey in the RISL.					
	Continue monitoring and surveys of marine lakes, including monitoring of invasive species, pollution and weather.					

By 2015 the effectiveness of protected areas in the RISL has been strengthened, by creating new Conservation Areas, and promoting the importance of protected areas to the community.	Establish a “wildlife preserve” at Kmekumer Islands for the protection of Hawksbill nesting beaches, nesting turtles and eggs.					
	Establish a protected area for known spawning site for kemedukl (humphead parrot fish).					
	Implement a public awareness campaign to promote the importance and benefits of protected areas for the community, to ensure greater compliance and effectiveness of these conservation areas.					
By 2016 strategies have been developed to enhance the resilience of ecosystems in the RISL to climate change.	Continue and expand research on key stresses/ threats from climate change.					
	Conduct research into the resilience of ecosystems to climatic stressors.					
	Conduct research to assess current non-climatic stresses and threats to ecosystems, and conduct vulnerability assessments.					
	Create action plans to reduce identified non-climatic stresses, to enhance ecosystem resilience.					
	Identify best management practices (BMPs) for dealing with shoreline erosion in other similar ecosystems, and investigate the feasibility of implementing action plans based on these BMPs.					
	Continue support of the long-term program to monitor shoreline erosion.					
By 2016 strategies and plans have been developed and implemented to prevent the establishment of new terrestrial or marine invasive species, and reduce the distribution and area covered by existing invasive species in the RISL.	Develop and begin implementation of a comprehensive and practical biosecurity (prevention and rapid response) plan for the RISL.					
	Conduct survey of major invasive terrestrial species to assess priority problems.					
	Assess and regularly monitor the distribution and area covered by invasive plant species on the Rock Islands.					
	Develop opportunistic monitoring and response plan for identified marine invasives.					
	Develop and implement programs to manage/control priority invasive species in the RISL, including reporting systems and response strategies.					
	Continue efforts to control the populations of Crown of Thorns Starfish within the RISL.					
	Train the rangers and beach boys to identify and remove invasive terrestrial plant species, particularly from tourist areas and areas around picnic huts.					

	Continue rat control programs in the RISL to reduce rat populations.					
	Remove invasive plant species from the RISL and regularly re-visit areas to monitor for and remove new growth.					
	Develop outreach and education programs to increase awareness of all regulations relating to plants and animals of the Rock Islands.					
<b>Goal 2: Subsistence and Commercial Fisheries Improvement</b>						
<p>➤ Ensure fisheries are sustainable by decreasing overall fishing pressure in the RISL.</p> <ul style="list-style-type: none"> <li>❖ By 2016 Koror State Government has developed the institutional capacity to manage and regulate fisheries.</li> <li>❖ By 2016 subsistence and commercial fishing and other extractive activities in the RISL are guided by zones and associated regulations.</li> </ul>	Develop/enhance regulations for subsistence, customary and commercial harvesting of fish and invertebrates in the appropriate zones.					
	❖ Develop harvesting restrictions for giant clams (e.g. through size and bag limits, moratorium on some species).					
	❖ Develop State regulations for fishing gear and practices (e.g. net types) to address gaps in National regulations.					
	❖ Develop fishing regulations for tourists, which limits visitors to only catch and release, or a separate permit for sports fishing/derbies.					
	Develop a Fisheries Impact Assessment (FIA) procedure for Koror State.					
	Create fisheries zones in the RISL.					
	❖ Designate invertebrate no-harvesting zones in the RISL.					
	❖ Designate a tourists' fishing zone to limit the impacts by visitors.					
	❖ Create clear no-take zones informed by the findings of fish surveys and other information on critical/breeding habitat.					
	Create guidelines for fishing tournaments, including exemptions to the usual zones.					
	Strengthen the regulations on commercial fishing within the reef, including the ban on foreign-owned fishing businesses and joint-commercial fishing ventures with foreign fishermen.					
	Publicize harvesting regulations and conservation areas, including through the internet, brochures, posters, maps, newspaper, radio, television, and presentations and signs on docks or other public places.					

	Develop and implement targeted awareness and education programs for resource users (including tourists) to increase their knowledge and understanding of the importance of fish resources and the reasons for regulations and restrictions, particularly focusing on the benefits of no-take zones to fisheries.					
By 2016 best management practices for key species are developed, including sustainable harvest rates and reseeded programs.	Partner with relevant agencies to undertake research into sustainable harvest levels, focusing on: <ul style="list-style-type: none"> <li>❖ Catch Per Unit Effort (CPUE) over time.</li> <li>❖ Size and abundance of fish populations.</li> </ul>					
	Investigate the feasibility and/ or effectiveness of reseeded programs for key species such as rabbit-fish, trochus and/or grouper.					
	Create a reseeded program for giant clams.					
	Create guidelines for captive breeding programs supplying reseeded stock, to prevent negative genetic impacts.					
By 2016 aquaculture projects are in accordance with Koror State Government aquaculture zones and regulations.	Legislature passes law to adopt aquaculture zone/s in the RISL to contain aquaculture within existing areas.					
	Assess the number and status of existing aquaculture sites.					
	Develop aquaculture regulations for Koror State.					
	❖ By 2016 regulations have been developed which cap the number of aquaculture sites and enterprises within the RISL.					
	❖ Regulate the species which can be cultured.					
	❖ Ensure aquaculture projects are in accordance with state regulations.					
	❖ Develop water quality standards.					
	❖ Make it a requirement for all new aquaculture projects to undergo an FIA before approval.					
	Work with the Environmental Quality Protection Board to ensure consistent water quality monitoring of the aquaculture sites.					
	Create guidelines that require aquaculture enterprises to be self-regulating industries.					
<b>Goal 3: Cultural and Historical Preservation</b>						
By 2014 Koror State Government has	Establish a Koror State registry for all cultural sites and features, and					

developed a program for protecting and rehabilitating cultural sites and features in the RISL, including the creation of a State registry, and the development of protocols and plans.	establish a timeline for the inclusion of cultural sites/features in the RISL.					
	Establish a timeline for the inclusion of the remaining unregistered cultural sites/features in the RISL into the National registry.					
	Work with Bureau of Arts and Culture to develop protocols and plans for maintaining and rehabilitating cultural sites.					
By 2016 at least three village sites that are in critical need of care or rehabilitation have been identified and a plan for their rehabilitation developed.	Conduct survey to assess village sites and prioritize for rehabilitation.					
	Koror State Department of State and Cultural Affairs to work with Bureau of Arts and Culture to develop a rehabilitation plan for each site, and build capacity to implement the plans.					
	Develop and implement communication outreach on efforts to rehabilitate village sites.					
By 2015 50% of the traditional cheldebechel of Koror have access to information on and value the importance of the RISL to Koror's cultural heritage.	Conduct social survey in 2013 to gauge awareness about the RISL's cultural value (partner with organizations such as Palau Conservation Society to conduct this survey).					
	Work with Bureau of Arts and Culture to collect documented oral traditions within the RISL.					
	Develop awareness materials/education programs for the RISL, including the sharing of oral traditions collected from the RISL.					
	Implement outreach activities (radio, TV, community activities etc) in partnership with established programs by partners such as PCS, PVA, PICRC, BNM.					
	Incorporate cultural traditional place names and species names into maps, signage and everyday use to revive the traditional bond to places (as opposed to foreign/ English names currently used).					
	❖ Work with traditional leaders to document place names and create new names for areas where names may not exist.					
	❖ Work with key stakeholders to consider a revision of the name of the RISL, to reflect cultural values, and a name that is Palauan.					
	Expand on existing youth and school programs to include more activities and information related to the RISL's cultural value.					

	Conduct social survey in 2015 to assess if people's awareness about the RISL's cultural value has increased.					
By 2014 Koror State Government has developed a program for protecting and preserving historical relics/sites in the RISL (i.e. WWII relics), including the creation of a State registry, and the development of protocols and plans.	Establish a Koror State registry for all historical relics and sites, and develop a timeline for the registration of key historical sites.					
	Conduct survey to identify key historical sites and their current state, including the presence of any unexploded ordnance from WWII sites.					
	Develop a plan to preserve and or/ increase the safety of the RISL's historic sites, including:					
	❖ Arrange for the removal of unexploded ordnance from WWII sites.					
	❖ Develop guidelines so that any work done by outside organizations/ Governments is done with prior Koror State approval, and information is reported back.					
	Co-ordinate with the office of the President of the Republic of Palau to secure the return to Koror State historic era properties that are controlled through the Lagoon Marine Protection Act.					
By 2016, a section depicting RISL and Koror State cultural traditions and historic era is established at the Belau National Museum.	Koror State work with Belau National Museum to create the capacity and space to develop a section dedicated to the RISL at the museum.					
	KSDCA to work with the Belau National Museum and other relevant agencies to gather information, stories and pictures about the cultural traditions and historic era in the RISL, and create exhibits.					
<b>Goal 4: Tourism, Recreation, and Economic Enhancement</b>						
<p>➤ Enhance tourism guidelines and regulations and ensure that tour operators and tour guides are in compliance with these.</p> <p>❖ By 2015 all tour operators are familiar with and are implementing tours according to the tour guide certification program.</p>	Implement tour guide certification program by 2013.					
	Create a staff position within Koror State dedicated to tourism, responsible for the tour guide certification program, the enforcement of regulations and guidelines, liaison with tour operators, and the development of new tourism ventures.					
	Review and enhance tourism regulations, guidelines and standards.					
	❖ Make it a requirement that all tour guides have adequate English and/or Palauan language skills.					
	❖ All tour guides must pass a					

	standard language test as part of the tour guide certification program.					
	❖ Establish regulations by 2014 for Ongeim'l Tketau, Jellyfish Lake.					
	Conduct survey in 2015 of current tour operators and tour guides to assess awareness and adherence to tourism guidelines					
	Create enforcement and monitoring programs to ensure that tour operators are in compliance with regulations.					
	❖ Create a fine system for non-compliance to regulations and negative practices.					
	Create an incentive program, including an award system, for tour operators to reward good operating practices.					
	❖ Explore feasibility of developing a special 'eco-friendly operator accreditation' to reward environmentally conscious operations, including restaurants that comply with wildlife regulations (with any breach of regulations resulting in loss of accreditation).					
	Work with relevant organizations to publicize tourist activity areas and regulations, including user fee information, through brochures, maps, posters, radio, and television.					
By 2016 tour operation guidelines and plans to ensure sustainable and low impact tourism have been developed.	Develop guidelines and regulations which minimize visitor impacts on tourist sites including:					
	❖ Rotational systems of tourist area use.					
	❖ Designate new tourist sites to allow for rotational site use and to reduce the pressure on existing sites.					
	❖ Temporary/ seasonal site closure.					
	❖ Restrictions on tourist numbers/ tour boat numbers.					
	❖ Regulate diving and snorkeling activities in the RISL to reduce site congestion, reduce damage to corals and other marine organisms, and increase site					

safety.					
❖ Assign scuba certification levels for key dive sites.					
❖ Establish regulations protecting manta feeding/cleaning zones of high aggregation.					
❖ Control fish feeding activities.					
❖ Limit fish feeding sites.					
❖ Control the amount and type of food given.					
❖ Develop regulations regarding visitor behavior at cultural and historical sites.					
Partner with relevant agencies to conduct environmental surveys/ research to assess:					
❖ Environmental impacts of tourism in the RISL.					
❖ Conduct regular monitoring of key dive sites to assess long-term impacts from divers and snorkelers.					
❖ Conduct research into tourist use and impacts of tourists at Jellyfish Lake.					
❖ Support research to determine the impacts of diver disturbance on fish spawning activities.					
❖ Carrying capacity of sites.					
❖ Seasonal vulnerability of important species within sites.					
Continue socio-economic surveys of tourism use in the RISL.					
Create and enforce guidelines for future development/construction of tourist facilities, including energy use and supply.					
Ensure newly developed tourist sites are multi-purpose, to limit the number of new sites needed, thereby limiting the impact of development in the RISL. <ul style="list-style-type: none"> <li>E.g. Develop new cultural sites in conjunction with new bird-watching tourism.</li> </ul>					

	Work with relevant agencies to develop educational and awareness material for tourists and locals explaining the environmental and cultural significance of the Rock Islands-Southern Lagoon Area and how they can help protect it.					
	❖ Develop a litter awareness campaign to encourage all visitors to the RISL to reduce the amount of trash they produce and take all trash with them when they leave, including food scraps and cigarette butts.					
<p>➤ Strengthen and enhance the cultural aspect of Koror State's RISL visitor experience.</p> <p>❖ By 2015 the cultural heritage of at least three tourism sites have been identified and developed as part of the RISL visitor experience.</p> <p>❖ By 2015 cultural heritage training for tour guides has been developed and incorporated into the tour guide certification program.</p> <p>❖ By 2016 at least 25% of tour operators in the RISL have integrated traditional cultural resource tours into their tour programs.</p>	Identify cultural sites to be tourist attractions.					
	Build infrastructure to support visitors.					
	Koror State Department of State and Cultural Affairs to develop cultural heritage tourism guidelines and training.					
	Koror State Department of State and Cultural Affairs to develop cultural site maintenance plan.					
	❖ Locate visitor arrival points and facilities away from the immediate environs of cultural sites to minimize site degradation from trash dumping, foot traffic and the construction and maintenance of tourist structures.					
	Develop interpretive and other signage in the Palauan and English languages to educate and inform visitors about the site and appropriate behavior within the site.					
	Promote the importance and value of cultural heritage tours to operators.					
	❖ Conduct FAM tours for operators.					
	Work with Palau Visitors Authority, Belau Tourism Authority and others to promote cultural heritage tours to visitors.					
	Conduct survey in 2016 to assess the number of tour operators which have integrated traditional cultural resource tours into their programs, and their adherence to tour guide training recommendations.					
<p>➤ Promote the historical aspect of Koror State's RISL visitor experience.</p> <p>❖ By 2015, guidelines and</p>	Identify historical sites/features to be tourist attractions.					
	Develop historical tourism guidelines and training, and incorporate into tour guide training.					

<p>training for tour operators have been developed concerning historical sites, and incorporated into tour guide training.</p>						
<p>➤ Strengthen and enhance the natural aspect of the RISL visitor experience.</p> <p>❖ By 2016 new nature-based tourism ventures are under development, particularly regarding the opportunity to build a bird-watching tourist market.</p>	<p>Work with Belau National Museum and Palau Visitors Authority to develop bird-watching tourism in the RISL, including:</p>					
	<p>❖ Tours in the RISL dedicated to bird-watching.</p>					
	<p>❖ Tour operating guidelines and training specific to bird-watching.</p>					
	<p>❖ An assessment of suitable sites for bird-watching.</p>					
	<p>❖ Creation of new pathways, infrastructure, information signs, and species checklists for bird-watching sites.</p> <ul style="list-style-type: none"> <li>• Note: this may be done in conjunction with the development of other new tourist sites, e.g. cultural sites.</li> </ul>					
<p>❖ Co-ordinate with Palau Visitors Authority to create tourist information dedicated to bird-watching.</p>						
<p>➤ Maintain local resident access to the RISL and enhance the local Palauan visitor experience/recreational use.</p> <p>❖ By 2016 facilities at key local only sites have been constructed and/or improved.</p> <p>❖ By 2016 develop best management practices (BMPs) for local site use.</p>	<p>Identify new areas which could be developed as local recreational sites.</p>					
	<p>Assess the accessibility and quality of facilities at local only sites, and develop a plan to construct and/or improve site facilities where necessary.</p>					
	<p>Develop BMPs for local site use including:</p>					
	<p>❖ Waste disposal.</p>					
	<p>❖ Facilities use.</p>					
	<p>❖ Regulations on what can be brought in and out (i.e. no plants and animals to be brought in).</p>					
	<p>❖ Interactions with wildlife.</p>					
	<p>❖ Anchoring and mooring of boats.</p> <p>❖ Community maintenance and renovations, including the development of an “Adopt a</p>					

	beach” program.					
	Develop an education and outreach program to increase awareness about BMPs for local recreational use of the RISL and the importance of respectful site use.					
By 2016, develop and enhance regulations and monitoring to ensure that development in the RISL Management Area is strictly controlled, while allowing necessary infrastructure to support better management of the area.	Review and strengthen regulations to strictly control any future development in the RISL.					
	Officially designate a Special Management Zone (SMZ) within the RISL which includes the sand mining operation site, aquaculture sites, and Dolphins Pacific.					
	❖ Regulate and control development within the Special Management Zone.					
	❖ Work with Environmental Quality Protection Board to establish strict controls and no-expansion limits for the current sand mining operation within the SMZ.					
	❖ Establish a minimum water quality standard for the SMZ.					
	❖ Establish measures to mitigate the impacts of activities that violate the minimum water quality standards, including fines.					
	For all areas in the RISL outside of the SMZ development will be strictly controlled and limited to the construction of low-impact facilities.					
	❖ Work with the Department of Public Works to create guidelines for construction and building of small scale facilities in the RISL.					
By 2016 develop/enhance regulations and monitoring for development in and around Koror to minimize degradation and pollution impacts in the RISL.	Create a Koror State reporting system and review process for all proposed development activities in Koror State.					
	Work with relevant departments to ensure that development in Koror is in adherence with regulations and the Environmental Impact Assessment (EIA) process.					
	Partner with relevant agencies to conduct research/monitoring into the impacts of the Malakal sewage outfall on the marine environment.					
	Partner with relevant agencies to conduct more detailed monitoring/research to determine the impacts of the M-dock rubbish dump on the surrounding ecosystem (plants and animals).					

By 2016 regulations and guidelines have been developed to ensure boating safety and minimize the impact of boating activities in RISL waters, including the mooring/anchoring of vessels.	Establish regulations for vessels entering and mooring/anchoring in Koror State waters.					
	❖ Create partnerships with relevant agencies to manage visitor boat numbers/traffic and improve existing regulations for motorboat registration.					
	❖ By 2015 conduct a socio-economic assessment on waste disposal for resident and visitor vessels.					
	❖ Create waste disposal regulations and fees.					
	Establish and promote regulations for anchoring to reduce the loss and degradation of coral reefs.					
	Develop a formal procedure and task force (including PICRC, EQPB, AG, CRRF, States) to deal with ship groundings within the State (including legislation if necessary).					
	Develop a formal procedure to deal with oil spills within the State.					
	Establish standard search and rescue/recovery procedures within the State.					
	Work with the National Government to develop a State boat operator's license.					
	Work with Division of Transportation, Marine Law and other National Government departments to define boat channels and/ or implement speed restrictions in areas that have high boat activity, diving/snorkeling activities occur, are ecologically significant or sensitive.					
	Develop and implement comprehensive water safety regulations for Koror State to increase the safety and quality of all water activities and tours in the Management Area.					
Identify partners to help with the removal of abandoned vessels.						
<b>Goal 5: Koror State Government Institutional Capacity Development</b>						
By 2016, regulatory and legislative frameworks for management in the RISL have been reviewed and, where appropriate,	Review and update the effectiveness of current regulations relating to management in the RISL, including but not limited to:					
	❖ Fishing license.					
	❖ Rock Island Conservation Act.					

improved.	❖ Amend Koror State Public Law No. K6-121-2001 regarding the monetary value of damage to coral reef ecosystems located in Koror State's Waters, to include the use of settlement funds to cover legal costs and site restoration efforts (if required), and develop regulations to enforce the act.					
	❖ Amend boating regulations and licensing.					
	❖ Municipal ordinance 49/69.					
	❖ Amend the curfew law.					
	❖ Amend the air rifle regulations.					
	❖ Amend photo permit legislation.					
	Identify gaps/weakness in current regulations and work to create new legislation and regulations, including but not limited to:					
	❖ Create a mandate requiring that all research in the RISL is reported to a centralized database within Koror State Government, and recommendations are provided to help inform management.					
	❖ Create procedural guidelines for dealing with emergency situations.					
	❖ Create regulations that state that all commercial activities carried out in the RISL must be permitted by Koror State.					
	Identify where there are exemptions to the regulations, and ensure that there are strict guidelines where this applies. For example:					
	❖ Ensure that all harvesting of timber in the RISL in cases exempted from the ban (i.e. for cultural purposes) are approved by the Traditional Leadership and Koror State Government and follow established guidelines.					
	❖ Establish formal procedures between State and traditional leaders for the harvesting of timber.					

By 2016 the capacity of Koror State Government to effectively carry out enforcement and surveillance activities in the RISL has been enhanced.	Review the effectiveness of enforcement and surveillance activities. Maintain all effective enforcement activities, and where regulations are not being adhered to, assess strategies to improve enforcement.					
	❖ Full implementation of Ngemelis Outpost and replication at other sites					
	❖ Establish a database for boat registration/visiting vessels, citations, aquaculture, and research permits.					
	❖ Establish a secure VHF channel.					
	Work with other states which share boundaries with Koror State to develop regulations to protect important cross- border areas, such as the German Channel, by coordinating and supporting enforcement of regulations in Koror and neighboring state waters.					
	Improve the capacity of Koror State Conservation and Law Enforcement to carry out enforcement and surveillance activities.					
	❖ Review and improve the training of State Rangers.					
	❖ Ensure adequate staffing and technical support.					
	❖ Ensure adequate capacity so that other commitments, such as monitoring community events, do not interfere with operational capabilities within the RISL.					
	❖ Deputize select Rangers to enhance enforcement authorities where needed.					
	❖ Establish Standard Operating Procedures (SOPs).					
	❖ Establish a department-wide staff ranking system.					
	❖ Ensure necessary equipment (such as GPS, cameras, scuba gear) are acquired, and expand facilities.					
	Develop procedures for permitting processes and exemptions (e.g. visitor permits, filming permits).					

By 2016, Koror State Government has worked to strengthen relationships and communication with organizations involved in the implementation of activities, and with key stakeholders/ resource users.	Identify organizations which will be implementing specific activities, and engage them to carry out required tasks.					
	❖ Establish Memorandum of Agreement (MOAs) with organizations involved in the implementation of activities.					
	Strengthen the partnership with key organizations which will be instrumental in the long-term management of the RISL.					
	Work with key organizations to ensure they have sufficient capacity to carry out tasks by the dates required.					
	Develop protocols for issues which are cross-jurisdictional and involve several departments or levels of Government.					
	Work to strengthen the communication between internal and external key partners, including the sharing of key information/data.					
	❖ Work to develop and maintain a database for all information relevant to the RISL.					
	Create a website dedicated to the RISL to allow for the effective sharing of information, including visitor information, reports, regulations and zones, maps, links to partners, and ongoing projects.					
	Strengthen the relationship with tour operators, including:					
	❖ Continue to strengthen communication and cooperation between Koror State and tour-operators through regular meetings, and liaison with tour related agencies/bodies.					
	❖ Work with tour-operators to develop a coral reef monitoring program to assess diver and snorkeler impacts on key dive and snorkel sites, increase environmental awareness, and strengthen relationships between the government and tourism industry.					
	Strengthen the relationship with fisheries co-operatives and fishermen associations.					
	Identify key stakeholders/ resource users for the RISL, and work to include them in the management process.					

	❖ By 2013 conduct socio-economic surveys to identify key resource users and stakeholders.					
	❖ By 2014 involve identified stakeholders in the 2 year review process/ community consultation.					
By 2016 establish links with other management programs at a national, regional and international level to better manage the RISL.	By 2013 designate Ngerumekaol Protected Area and Ngerukewid Islands Wildlife Preserve to become part of the Protected Areas Network (PAN), and consider designating other sites to PAN.					
	By 2013 develop the administrative capacity to meet requirements as a UNESCO World Heritage Site, including reporting.					
	❖ Coordinate with Palau International Coral Reef Center, Belau National Museum and other organizations for monitoring and reporting required by UNESCO and the World Heritage Committee and its relevant advisory bodies.					
	❖ Establish a UNESCO World Heritage Site visitor information kiosk and displays, integrated as part of existing visitor centers (BNM, PICRC).					
	Investigate the feasibility of linking the RISL to other regional and international conservation programs.					

## Finance and Budget

Adequate financial support must underpin all management efforts in the RISL. As The Koror State Department of Conservation and Law Enforcement is the State government agency primarily responsible for management of the RISL, its entire budget is devoted to the management area. The current department budget is allocated to management costs that include personnel, fuel, boat and vehicle maintenance, supplies, marine buoys and channel markers, Jellyfish lake improvements, and communication.

It is expected that the costs of managing the RISL will increase, along with the increased management efforts stipulated under this Management Plan. Increased funding will be required for areas such as:

- Additional staff, to adequately implement activities, including the development of regulations and zones, increased enforcement efforts, and the development of specific programs and plans.
- Research.
- Training.
- On the ground activities.
- Capitol assets, such as boats and equipment.
- Infrastructure.
- Communication meetings with partners and key stakeholders.
- Education.

As management of the RISL is cross-cutting and will increasingly involve a number of different State departments, several departments will need to budget for management activities in the RISL, including KSDCLE, KSDSCA, and KSPW. Partners will also be expected to be financially responsible for management activities that they are involved in. For instance, it is expected that much of the costs of research will be met by the organizations conducting these activities.

The majority of the funds for managing the RISL are generated from the sale of the Rock Island and Jellyfish Lake permits to tourists. In 2011, the sale of these permits generated over \$3.4 million. This revenue goes directly to the Koror State Government, and the Governor and the Legislature then approve and appropriate an annual budget for Koror State Government operations, which includes KSDCLE and the other state departments. In the past, when necessary, the state government has also passed supplementary budgets within the fiscal year, to help departments meet unexpected costs. The ninth State legislature and the Koror State Governor established a reserve fund that required three percent of the funds generated from the Rock Islands Management and Conservation Act to be placed into a reserve fund, which can be used in emergency situations relating to the RISL. This is a possible additional source of money to the annual budgets, if needed.

It is expected that the recent increase in costs for the RISL tourist use permits will result in an increase in revenue for the State, and that this money can be allocated to management activities. The allocation of two conservation areas to PAN, as stipulated under this Management Plan, will also result in access to PAN funding for management activities. The recent inscription as a World Heritage site should result in greater opportunities to receive international grants and other forms of financial assistance.

A five year projected budget will be created for management of the RISL, with assistance from PCS. Annual management budgets will also be developed, based on annual work plans. These budgets will help the State departments manage and justify their costs, and help in the application for additional funding.

## Chapter 4: Monitoring and evaluation

### Monitoring and evaluation of the effective implementation of the Management Plan

Throughout the five years of the management plan, it is important for managers and partners to be able to track that it is being effectively implemented. Key objectives, and key activities in meeting those objectives, can be used as benchmark indicators for each goal to show that the management plan is on track and being implemented effectively (see Table 13).

Throughout the implementation of the plan, Koror State will be expected to monitor the effective implementation of all activities and objectives on a more detailed level, using annual work plans to co-ordinate the implementation of activities, and will be expected to have completed all components of the plan along that timeline. This evaluation component is an important part of adaptive management, with self-checks helping managers keep on track, and update sections of the plan which have been found to be ineffective or which have been found to be unrealistic for implementation.

**Table 13. Benchmark indicators to track progress of the RISL Management Plan.**

Goal	Benchmark Indicators	Jul-Dec 2012	Jan-Jun 2013	Jul-Dec 2013	Jan-Jun 2014	Jul-Dec 2014	Jan-Jun 2015	Jul-Dec 2015	Jan-Jun 2016	Jul-Dec 2016
<b>Goal 1: Biodiversity/ Natural System Health Enhancement</b>	Surveys of valuable food fish species, including fish habitats, have been conducted.									
	Protected areas have been created in the RISL to maintain the health of key species.									
	Research has been conducted into key climatic stresses, ecosystem resilience and BMPs for shoreline erosion.									
	Strategies have been developed to enhance the resilience of ecosystems in the RISL to climate change, by reducing non-climatic stresses.									
	Strategies to deal with invasive species have been developed, including a comprehensive biosecurity plan.									
<b>Goal 2: Subsistence and Commercial Fisheries Improvement</b>	Fisheries regulations and zones have been created for the RISL, which guide subsistence and commercial fishing activities.									
	Educational campaigns have been conducted to ensure knowledge and compliance of fisheries zones and regulations.									
	Aquaculture guidelines and regulations have been created and applied to the RISL, which control commercial aquaculture projects within the area.									
<b>Goal 3: Cultural and Historical</b>	State registers for cultural and historical sites/features have been established.									

<b>Preservation</b>	Protocols and plans have been developed for the protection of cultural and historical features/sites.								
	At least three village sites that are in critical need of care or rehabilitation have been identified and a plan for their rehabilitation developed, in order to preserve them for the future.								
	Social surveys has been conducted to gauge awareness about the RISL's cultural value.								
	Programs designed to increase awareness about the cultural value of the RISL are implemented, including educational awareness campaigns, and youth and school programs.								
<b>Goal 4: Tourism, Recreation, and Economic Enhancement</b>	The tour guide certification program has been implemented.								
	Enforcement and monitoring programs have been created to ensure that tour operators are in compliance with regulations.								
	Cultural sites to be used for tourism have been identified.								
	Guidelines and training for cultural tourism are developed and implemented.								
	At least 25% of tour operators in the RISL have integrated traditional cultural resource tours into their tour programs.								
	Regulations have been reviewed and strengthened to strictly control any future development in the RISL.								
	Zones have been designated which control development, including a Special Management Zone, where current significant development is restricted to.								
	A boat operator's license has been created in partnership with the National Government.								
	Standard search and rescue procedures within the State have been established.								
<b>Goal 5: Koror State Government Institutional Capacity Building</b>	Regulatory and legislative frameworks for management in the RISL have been reviewed and, where appropriate, improved.								
	Koror State has created mechanisms that build the internal capacity to effectively carry out enforcement and surveillance.								
	Memorandum of Agreements have been established with partnering organizations involved in the implementation of activities for this Management Plan, and understanding of roles and responsibilities has been achieved.								

<p>Ongoing meetings and other communication mechanisms have been established to strengthen the working relationships and co-operation between Koror State Government, partnering agencies, other National and State Government departments, and key stakeholders.</p>									
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**Review of the Management Plan**

It is an important part of effective management to have a review process, whereby the implementation of this management plan can be assessed. Midway through the five year management plan, in 2014, the RISL Executive Committee will hold a review of the management plan, which will be open to the wider community and stakeholders for input.

The review process will involve assessing whether all aspects of the plan are being implemented according to schedule. The monitoring and evaluation benchmark indicators can be used as a large part of this assessment. The process will look at what areas are falling behind and what activities have failed to be implemented. The review will then look at ways to help improve any such issues, and whether the actions which are proving to be difficult to implement in reality need to be changed or delayed. The review will also update the plan with any additional activities proposed, and any additional information. In this way the management plan should be viewed within the framework of adaptive management, with a continual cycle of improvement and redesign, rather than as a static document.

The review process will involve the Executive Committee and members of the core planning team. Community and stakeholder consultations will also be conducted. This will be an important chance to gather any community feedback about management efforts in the RISL, particularly regarding any major changes to management guided by this Management Plan.

The plan will also be reviewed at the end of its designated life-span, in 2016, and a new five year Management Plan will be created. It is intended that all activities within this plan will have been implemented by that stage, and that new activities will be developed to build upon these five years of management.

**Monitoring and evaluation of resources**

Monitoring and evaluation is an essential part of resource management. Assessments of the health of ecosystems and resources are conducted to inform managers of the state of conservation targets.

Koror State will adopt Palau’s Protected Area Network Marine Monitoring Protocols for monitoring marine ecosystems in the RISL. The Palau International Coral Reef Center will be primarily responsible for marine monitoring.

The national forestry monitoring protocols, being developed in 2012, will be used to monitor terrestrial ecosystems in the RISL. The Bureau of Agriculture will be primarily responsible for terrestrial ecosystem monitoring.

# Chapter 5: Zoning and Legislative Background

## Rock Islands-southern Lagoon Area Zoning

### Current Zoning

The entire Rock Islands Southern Lagoon is zoned as a conservation zone, which allows multi-use activities, including recreational use, subsistence use and limited commercial use. As a conservation zone, development is limited in the area, and resource use is regulated by legislation.

The RISL also currently has four specific zones: Conservation Areas; Tourist Activity Areas; Diver Sites; and Watercraft Areas (see Figure 2). Tourist Activity Areas designate land sites which tourists can enter, as long as they have a valid User Permit issued by Koror State. Rock Islands which are not tourist activity areas are reserved for the exclusive use of Palauans and local residents. The Diver Sites are zoned areas where commercial diving can operate within the RISL. The four Water Sport Zones designate these areas strictly for watercrafts/ water sports use.

There are seven Conservation Areas in the RISL. Ngerukewid Islands Wildlife Preserve; Ngkisaol; Ngerumekaol Channel; Ngemelis; Ngederrak; Ngerkebesang Conservation Zone; and Ngermalk and Long Island Park. These Conservation Areas are afforded greater conservation protection, through regulations controlling resource use and access, such as no fishing, no hunting or no entry.

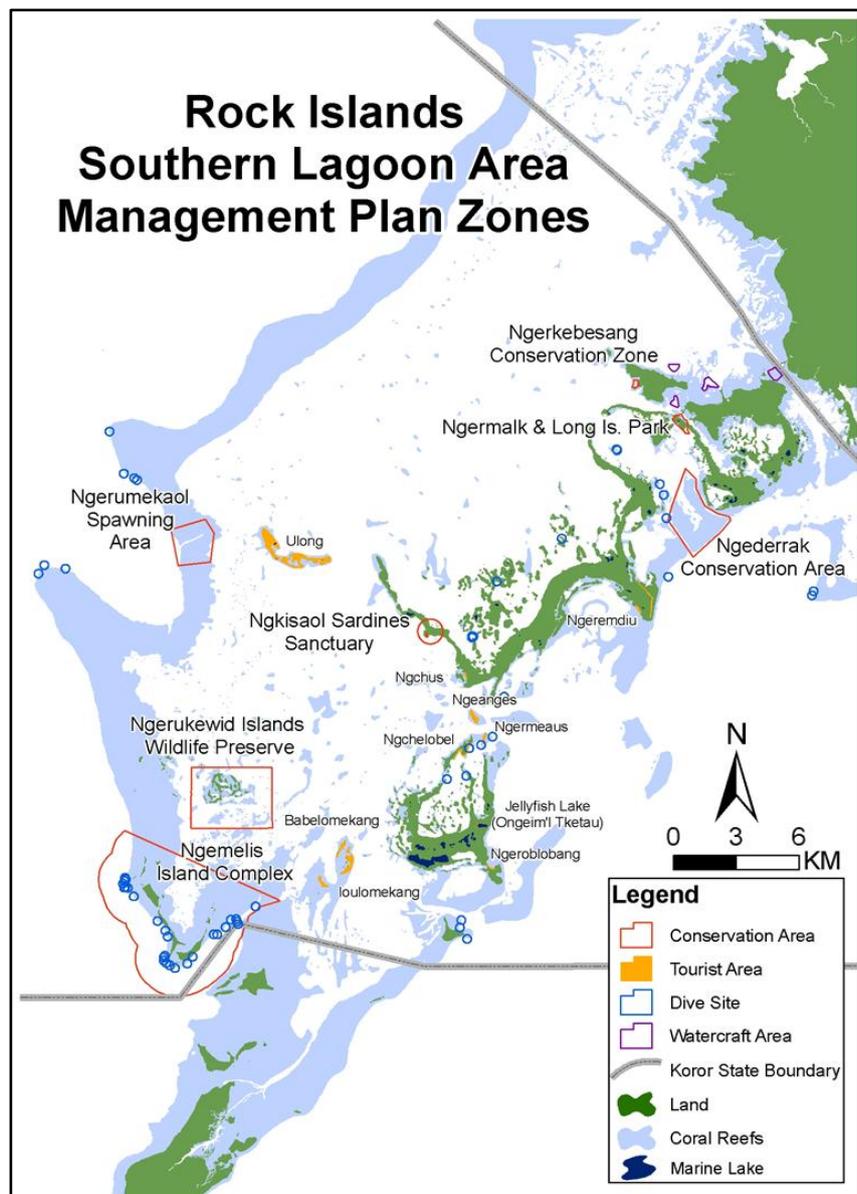


Figure 2. Current Rock Islands Southern Lagoon zones.

## **Future Zones**

This Management Plan seeks to build on the existing zones in the RISL, to allow managers better control of resource use and activities, and to make regulations clearer for key stakeholders and resource users. These zones will be developed throughout the five years of this Management Plan, particularly in the first 2 years of implementation.

Two new Conservation Areas will be created to help enhance natural system health: a “wildlife preservation reserve” at Kmekumer Islands, for the protection of Hawksbill nesting beaches, nesting turtles and eggs; and a protected area for the known spawning site for kemedukl (humphead parrot fish).

Several new fisheries zones will be created, including: an invertebrate no-harvesting zone in the RISL; a recreational fishing tourist zone, to limit impacts by visitors; and no-take zones, informed by the findings of the fish surveys and other information on critical/breeding habitat. These zones are designed to strengthen the regulations on fishing within the area and ensure greater sustainability of fisheries, while allowing subsistence fishing in almost all of the RISL, which will remain unzoned. These restrictions on fishing by tourists, added to the existing restrictions on commercial fishing, act to prioritize fishing for the local community. Koror State will also create an aquaculture zone, to limit and control aquaculture development and any associated impacts.

In order to control and limit development within the RISL, Koror State will designate a Special Management Zone (SMZ) within the RISL which includes the sand mining operation site, aquaculture sites, and Dolphins Pacific. All such development projects will be restricted to this zone. Development in the rest of the RISL will be extremely minimal, in accordance with its status as a conservation zone.

## **Rock Islands Southern Lagoon Legislation**

Management of the Rock Islands Southern Lagoon is currently governed by the 2009 Rock Islands Management and Conservation Act (Koror State Public Law No. K8-207-09), with amendments as per the Koror State Public Laws No. K8-209-09, K9-245-2011, and K9-248-2011. A number of other State Laws also pertain to the RISL, which regulate resource use, tourism and recreational activities, and designate protected areas within the management area (see Table 14). National domestic fishing laws also apply to the RISL and are enforced by national enforcement officers at the Division of Fish and Wildlife. Additional National regulations that control access to specific areas in the RISL have been reinforced by State Law.

All existing regulations relevant to the RISL will be reviewed under the Management Plan, and amended or updated where necessary. A number of new regulations will be created under this Management Plan, including regulations relating to fishing, aquaculture, tourism, development, and boating (see Goal 5).

**Table 14. Summary of Koror State Acts and Regulations relevant to the Rock Islands Southern Lagoon.**

<b>Koror State Acts &amp; Regulations relevant to the Rock Islands Southern Lagoon</b>			
<b>Regulation</b>	<b>Purpose</b>	<b>Reference</b>	<b>Effective</b>
<b>General Resource Use</b>			
Marine Tour Guide Certification	To require the presence of a licensed Marine Tour Guide on all commercial marine tours to the Rock Islands and/or the water of Koror State; and to provide penalties for violations.	K9-233-2011	2011
Prohibit construction in the Rock Islands of Koror	Prohibits any kind of construction building on the Rock Islands, except the construction or improvements made by KSG.	K9-122-10	2010
Permit for Shell Collection	Regulates collection of shells, except for scientific purposes or for food.	MO 46-69	1969
Photo Permit (commercial use)	Regulates commercial photography (still & movies) and the fees of motion picture permits as determined by the governor.	K8-202-2008	2008
Fisheries Management Act	Regulates the taking and selling of <i>Bekerkard el Tiau, Tiau, Basloki, and Melechies</i> .	K9-243-2011	2011
Harvesting of sea cucumbers	Establishes a moratorium on the harvesting of sea cucumbers.	K9-247-2011	2011
Harvesting restrictions in the Rock Islands, Decree by Ngarameketii, Chief Council of Koror	Prohibits harvest of any marine or terrestrial life by non-residents of the State, & the taking of domestic animals to the Rock Islands.		1973
Fishing License (commercial)	Regulates commercial harvest of marine resources, & prohibits use of damaging fishing techniques.	K4-68-95	1995
Harvesting & cutting of vegetation in mangroves.	Prohibits the harvest/cutting of vegetation in mangroves & wetlands below the high tide line.	K6-110-2000	2000
Sardine harvesting restrictions	Prohibits the sale of sardines (mekebud) & restricts fishing or capture of sardines (mekebud, merau, & teber) at certain areas and for 4 days before & during full moon.	K6-95-99	1999
Economic & non-economic values of coral reef ecosystems	Recognizes the economic & non-economic values present in coral reef ecosystems in Koror State waters, & authorizes the Governor to put in effect rules & regulations to enforce this Act.	K6-121-2001	2001
Rock Islands Management & Conservation Act	Designates tourist activity areas and establishes the use of Rock Islands-Use and Jellyfish Lake permits.	K8-207- 2009, K8-209-2009	2009
State Parks-Koror Side Japan Friendship Bridge & Long Island	Designates Koror State Parks in these two areas.	K7-132-2002	2002
Fishing License Amendment (Non-Commercial use)	Prohibits non-Palauan citizens from fishing from land on Koror Island. Fishing license permits fishing from a boat or registered watercraft only.	K7-138-2003	2003
Land Crab Act (rekung el daob, rekung el beab, kesuar)	Prohibits the taking, possession, & sale of live or dead land crabs during certain times, & undersized or berried crabs at any time.	K7-140-2003	2003
Prohibit Shark Feeding	It is unlawful to feed sharks in the waters of the State of Koror.	K8-186- 2007	2007
Prohibit Fishing at Dive and Snorkel sites	No one may engage in fishing activities or possess any fish or fishing	K8-191- 2007	2007

	gear within 100 yards of dive/snorkel sites.		
Historical and tangible cultural property permit review and fees	Provides for Koror State legislative review of permits issued by the national government Division of Cultural Affairs as provided by 19 PNCA 134 (historical sites and tangible cultural property) and the creation of a \$100 permit fee	K8-183-2007	2007
<b>Boating</b>			
Boat Registration Act	To require boat registrations for a one year period from the date of registration instead of one calendar year.	K8-184-2007	2007
Cruising Yacht Permit (non-commercial)	To require permits to be obtained by owners or operators of cruising yachts when such yachts anchor, moor or dock within the territorial waters of the state of Koror.	K6-107-2000	2000
Live aboard Vessels	Limits the number of live-aboard vessels operating in KS, bans operation of new vessels, & established permit fees.	K6-124-2001	2001
Prohibit motorboat operation at Kerker ra Kosiil	Prohibits motorboat operation.	K7-130-2002	2002
Jetski & similar motorized personal watercraft	Establishes safety & operational regulations for personal watercraft & designates 4 water sport zones.	K7-139-2003	2003
<b>Protected Areas</b>			
Long Island Park	To create a conservation area consisting of Long Island Park and the adjoining rock island.	K9-244-2011	2011
Ngemel Islands Conservation Zone	To establish a “no fishing” zone for all area within one mile of Ngemel Islands complex, to prohibit the taking of flora and fauna from, and introduction of flora and fauna into, the Ngemel Islands complex.	K9-229-2010	2010
Ngemel Islands	Complex Idle speed boat crossing at Toi Riobes permissible.	K8-192-2007	2007
Ngerukuid Islands Wildlife Preserve and Ngerumekaol Spawning Area	Prohibits transport of firearms or other weapons capable of killing or capturing birds, animals or marine life, bans transport of domestic animals, use of fire or cutting, destroying or removing plants. Prohibits fishing, killing, trapping or possession of fish at any time.	K6-101-99	1999
Soft coral arch, cemetery reef, & all marine lakes	Prohibits fishing, hunting or taking of any marine flora & fauna.	K6-95-99	1999
Ngederrak Reef	Establishes Ngederrak as a permanent conservation area.	K7-156-2005	2005
Ngerkebesang Conservation Zone	Prohibits fishing, hunting, taking or disturbance of any marine flora & fauna.	K7-136-2002	2002

# Chapter 6: Background Information/ Description of the Management Area

## Geology

Millions of years of uplifting, erosion, and other processes have resulted in great geological diversity within the RISL, including high- and low-lying limestone “Rock Islands”, coral reefs, marine lakes, and caves.

The RISL is enclosed by a vast barrier and fringing reef system that is well developed and continuous on the west side, and less developed on the east side. This reef system, enclosing a shallow lagoon with an estimated area of over 120,000ha, contains approximately 683 patch reefs and 11.6km of fringing reefs (Yukihira *et al.*, 2007).

Within the RISL, there are over 440 karstic islands (Yukihira *et al.*, 2007). These islands are carbonate fossil islands formed during the Miocene era. Coral reefs were uplifted to form limestone islands, which have eroded over millions of years to form the iconic islands known today as the Rock Islands (Colin, 2009).

The majority of islands are rugged and steep, although there are a small number of low islands on the barrier reef. Many islands display distinctive mushroom-like shapes, with sea-level notches creating overhangs extending around their perimeters, which were believed to have formed from chemical, biological, and physical processes (Corwin *et al.* 1956; Hodgkin 1970; Colin 2009). Over time, rainwater has dissolved the interior of many of the Rock Islands, creating features such as fissures, sinkholes, caves, arches, and speleotherms.



A typical mushroom shaped rock island.

Within the Rock Islands, there are approximately 52 marine lakes, which are bodies of seawater surrounded by land and connected to the lagoon via fissures and tunnels in the limestone rock (Colin, 2009). These unique lakes were formed approximately 10,000 years ago, when higher sea levels filled depressions in the limestone islands.

## Biodiversity

### Marine Ecosystems

The RISL has an exceptional diversity of marine ecosystems, including barrier reefs, outer reef channels and passes, southern lagoon shallow flats, reef basins, lagoon patch reefs, Rock Island fringing reef slopes, Rock Island inner basins and coves, marine lakes, mangroves, seagrass and algal beds (Colin, 2009).

The fringing reefs surrounding the intricate arrangement of Rock Islands, found from secluded inner basins and coves to the reefs lining the Rock Island bays, create a multitude of habitats, each supporting a distinct set of species (Colin, 2009). The Rock Island fringing reefs are so unusual and spectacular that one site is popularly called Rembrandt's Wall. On the steep reef slopes, the unique underwater habitats are found in few places in the world, with an unusual species composition and abundance of typically more cryptic species. This fringing reef habitat is also the home to several newly-described species, including the Latent Slingjaw Wrasse, (*Epibulus brevis*) (Carlson et al. 2008), and several sea squirts (*Stolonica limbata*, *Aplidium controversum*) (Monniot and Monniot 1996); and *Rhopaalea circula*, (Monniot and Monniot 2001).

The deep reef habitats further out from the Rock Islands support important species, such as precious black corals and a chambered nautilus endemic to Palau, *Nautilus belauensis*. The open ocean that surrounds most of the Rock Islands supports a rich diversity of species, including sharks and cetaceans, and boasts a rich pelagic fishery.



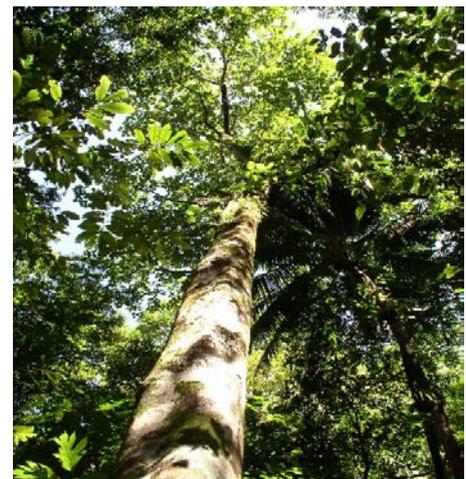
Endemic *Nautilus belauensis*.  
Photo by Patrick Colin.

The marine lakes of the Rock Islands are unique marine ecosystems, supporting assemblages of habitats and communities of organisms found nowhere else in the world. Their value as “natural marine laboratories” for basic ecological research is world-renowned. The marine lakes, ranging in depth from 2 to 60m, have physical, biological and geological features that make each lake remarkable and unique. The most well known marine lake is Ongeim'l Tketau, or “Jellyfish Lake”, which is famous for its golden jellyfish (*Mastigias papua etpisoni*). The endangered estuarine crocodile has been reported in several of the Rock Islands' marine lakes, although the lakes are not believed to provide breeding habitat (Messel and King, 1991).



Ongeim'l Tketau, with its famous golden jellyfish. Photo courtesy of PCS.

Mangroves are present in small patches in some protected coves and marine lakes. Important populations of baitfish, including the gold-spotted herring, are associated with



these mangrove stands (e.g. at Ngkisaol). Seagrass beds are found in several areas, particularly near Ngemelis, and provide feeding grounds for the endangered green sea turtle (*Melob*) and the dugong (*Mesekiu*).

## Terrestrial Ecosystems

The forested Rock Islands are diverse and complex terrestrial ecosystems, providing important habitat for rare birds and animal species. Although only covered with a thin soil layer, with a steep and rugged karstic substrate, the Rock Islands are densely vegetated and species rich. There are two main forest types within the RISL: the dominate limestone forests, and strand forests along the back beaches. The sandy beaches also support rare vegetation and nesting sites for endangered species, such as the Hawksbill turtle and the Micronesian Megapode.

## Species Diversity

### Corals

Located in the center of the Indo-Pacific, Palau is one of the Strand forest at Ngeremdiu. The areas in the world, with hard coral diversity comparable to the highest coral diversity areas recorded in Indonesia, the Philippines and Australia (Maragos 1994). Palau has the most diverse coral fauna of Micronesia, and the highest density of tropical marine habitats in a comparable geographic area found anywhere in the world (Golbuu, 2000). More than 400 species of hard corals (Maragos *et al.*, 1994) and 150 species of soft corals (Fabricius *et al.*, 2007) have been recorded in Palau, with at least 385 coral species estimated to be found in the RISL (Victor, 2009).

### Fish, Sharks and Rays.

More than 1,350 species of marine fish have been recorded in Palau (Meyers, 1999), with at least 746 species of fish occurring in the RISL (Maragos *et al.*, 1994). The RISL also has a high diversity of sharks, with at least 13 of the 17 reported shark species in Palau observed at the famous blue corner within the RISL (T. Bornovski, pers. comm.). Manta rays are also found within the RISL, with the German Channel known to be an important feeding and breeding area.

### Herpetofauna

Both the endangered hawksbill sea turtle (*Eretmochelys imbricate*) and the endangered green sea turtle (*Chelonia mydas*) are found within the RISL. Palau has the only hawksbill sea turtle (ngasech) nesting sites in Micronesia, and the Rock Islands provide Palau's most important nesting areas for this species (Maragos *et al.*, 1994).



Hawksbill sea turtle.  
Photo by Paul Collins.

The saltwater crocodile, which is the only native crocodile in Palau, (Russello *et al.*, 2006), is regularly observed in the RISL (Nash *et al.*, 2009).

All of Palau's confirmed endemic herpetofauna have been found to be present in the RISL (Crombie and Pregill, 1999). Individual Rock Islands or island groups have exclusive endemic herpetofauna, that include the following species: *Platymantis pelewensis*, *Gehyra brevipalmata*, *Gekko* sp. (not described), *Lepidodactylus paurolepis*, *Lipinia leptosoma*, *Spenomorphus scutatus*, *Spenomorphus* sp. nov. (not described), and *Ramphotyphlops acuticaudus*.

## Mammals

Palau is home to the only population of the vulnerable dugong (*Dugong dugon*) in Micronesia. Palau's dugong (mesekiu) population is the most isolated in the world, making it of critical conservation concern (Nishiwaki and Marsh, 1985). Palau's small dugong population is under imminent threat of extinction if the number of dugongs killed each year does not decrease. The RISL contains some of the most important habitats for dugong in Palau, including Malakal harbor, and the seagrass beds in the Ngederrak Reef Conservation Area, which are important foraging and resting areas. Of the 30 dugong sighted during a survey in Palau in 2008, 24 were sighted in the RISL.

At the beginning of 2012, a survey of cetaceans in Palau found five species, including the Sperm Whale, the Pygmy Killer Whale, the Melon-headed Whale, the Spinner Dolphin, and the Pan-tropical Spotted Dolphin (O. Andrews, unpublished data).



Dugong with calf. Photo by Mandy Etpison.



Pilot whales in the sea outside of the barrier reef. Photo by Jerker Tamelander.

The two native terrestrial mammals in Palau, the Marianas flying fox (*Pteropus mariannus pelewensis*) and the Polynesian sheath-tailed bat (*Emballonura semicaduta*), are both found within the RISL. Ngeruktabel contains a large roosting population of *P. mariannus*, with as many as 500 bats.

## Birds

The RISL is home to all of Palau's endemic, regionally-restricted and endangered birds. Fifty-three of Palau's 151 bird species have been observed in the Management Area (Pratt and Etpison, 2008). The RISL appears to act as a refuge for several important bird



species. The endangered Micronesian megapode is found throughout the Rock Islands. A study in the 1990's found the near- threatened Nicobar Pigeon (*Caloenas nicobarica pelewensis*) to be the most abundant in the Rock Islands (Engbring, 1992), and subsequent studies have found their numbers to be increasing in the Management Area (VanderWerf, 2007). The RISL is also extremely important to the endemic Giant Whit-eye (*Negazosterops palauensis*), the Palau ground dove (*Gallicolumba canifrons*), the Audubon's shearwater (*Puffinus lherminieri*), the bridled tern (*Onychoprion anaethetus*) and the black-naped tern (*Sterna sumatrana*). All terrestrial habitats within the RISL have been designated as Important Bird Area (Holm *et al.*, 2008).

### **Invertebrates**

The RISL contains important marine invertebrate species, including seven giant clam species, the giant top shell snail *Trochus niloticus*, oysters, sea cucumbers, mangrove and coconut crabs, and lobsters. The Palauan endemic nautilus (*Nautilus belauensis*), which is the second largest nautilus in the world, is commonly found in the deeper outer reefs of the RISL. A rapid ecological survey in the 1990's found 47 species of macro-invertebrates (other than corals) in the RISL. However, these figures need updating.

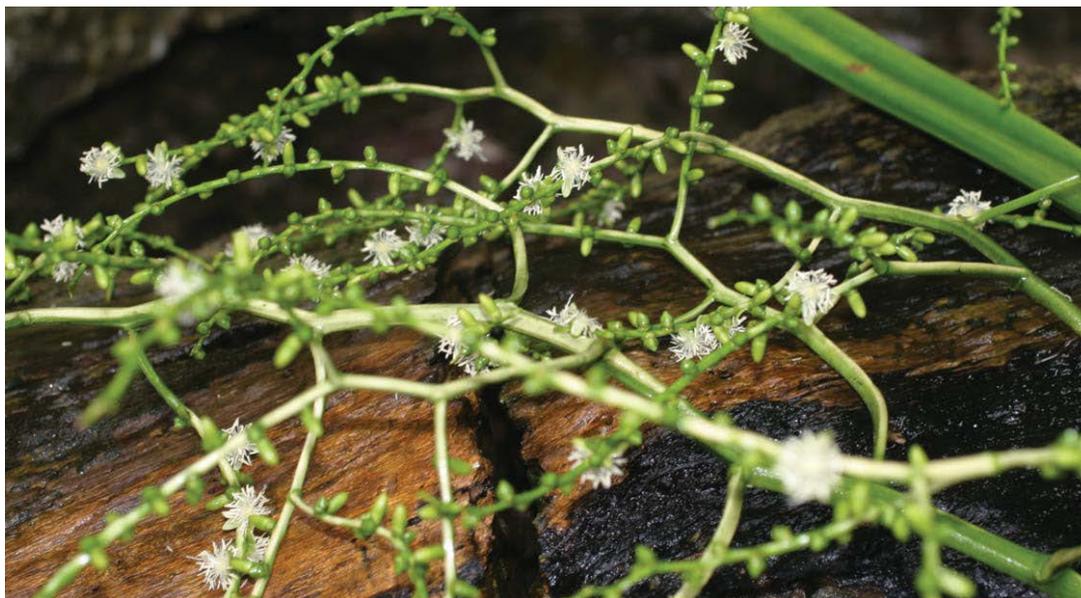


A brightly coloured Tridacna Clam at Ngerechong Reef.

There is less known about terrestrial invertebrates. However, studies have shown relatively high diversity of land snails, with 15 species found in the RISL (Rundell, 2005).

### **Plants**

The RISL contains 55 out of Palau's 130 endemic terrestrial plant species, and of these species, 31 are restricted to the Rock Islands (Kitalong Hillmann *et al.*, 2008; Costion *et al.*, 2009). Previous studies found that the Ngerukewid Islands Wildlife Preserve alone included 113 native plant species, 30 of which are endemic (Birkeland and Manner, 1998). The RISL also contains a number of endangered species, including *Cycas micronesica*, *Ponapea palauensis* and the endangered endemic palm, *Hydriasteke palauensis*. Further studies are needed to understand the diversity and status of terrestrial plants in the RISL.



The endangered species, *Ponapea palauensis*, found within the RISL. Photo by Ann Kitalong.

The RISL also contains a high diversity of marine plants, and has at least 57 taxa and 119 species of algae, including green, brown, red and blue-green algae. Nikko bay has an exceptionally rich algal flora, with over 75 species. Nine of the 10 seagrass species in Palau are found within the RISL (Ohba *et al.*, 2007).

### **Cultural/ Historical Values**

The Rock Islands and the surrounding marine areas that make up the RISL Management Area are an integral part of Palau's cultural identity, both in the present day and historically. Many families continue to visit the RISL to fish, glean, relax and barbecue on the white sandy beaches, just as past generations did. The area also provides a source of local coconut fronds and pandanas leaves for traditional handicrafts, as well as an inspiration for local artists who interpret the stunning scenery and wildlife through traditional and modern art forms.

The Rock Islands, or "Ocheall", meaning "Rocky Place", hold clues to Palau's pre-history and migration history, through prehistoric rock paintings, archaeological remains of abandoned settlements, and a rich oral history. The people of Koror and other areas of Palau trace their ancestry to the Rock Islands, and oral histories of these areas recount the movement of people from the Rock Islands throughout Palau (Nero, 1987).

The Rock Islands have been occupied by people for thousands of years, with evidence of humans at Ulong Island over 3100 years ago. The earliest human settlement in the Rock Islands is believed to date back to 650 AD, at Uchularois, Ngemelis (Nero, 1997). However, permanent villages in the RISL were first established around 1200 AD. Rock Island



Oimaderuul Beach refurbished stone well. Photo by Clark/Reepmeyer, ANU.

villages were gradually abandoned from 350-100 years ago, due to drying climates and economic difficulties. Ancient stonework villages and artifacts showing the history of Palauan communities throughout the ages can be found on many of the Rock Islands. Major stonework sites include stone platforms, terraces, walls, wells, and canoe docks. A variety of ancient deposits have been found including shell and stone tools, ornaments, shell rings, ceramics, food shells, fish and animal bones. The oldest cultural site in Palau is located at Ulong Island, with deposits dating back 3000 years (Clark 2005). Human bones from a cave burial site on Chomedokl Island have been dated to range from 200 BC to 900 AD, indicating the long history of cave burial in the Rock Islands. Caves and shelters were used for human burials in the Rock Islands for almost 2000 years.

Prehistoric rock paintings can be found at five locations within the RISL management area: Metuker ra Bisech, Aluptaciel, Ngeruktabel, Ulong and Eastern Koror (Ngermid). The paintings at Ulong are believed to be one of the oldest art sites in the Pacific (Clark, 2005).

The Rock Islands were also visited by people from the neighboring island of Yap, who traveled roughly 250 miles to carve large stone money disks from aragonite, a type of limestone common in the Rock Islands. The remains of stone money quarries, and stone money, dating back to around AD 1500 can be found in the RISL.



Ngeremdiu Yapese stone money.  
Photo by Clark/Reepmeyer, ANU.

The RISL also contains relics from more recent historical events involving other countries. One of the first recorded encounters with Europeans took place at Ulong Island in 1783, when Captain Henry Wilson and the crew of the East Indian ship “the Antelope” took refuge on the island after being shipwrecked on a nearby reef (Osborne, 1966). Jungle-covered ruins of a military base, built during the German occupation of Palau, can be found on Ngeruktabel Island.

The Rock Islands were an important area during World War II, with fighting between Japanese and American forces. There are many World War II artifacts spread throughout the area, including the remains of Japanese lookouts, unexploded ordnance, abandoned equipment, gun emplacements, and sunken ships and planes.

## Fisheries Values

The waters of the RISL have been an important fishing area for the people of Palau for thousands of years, particularly during the long period of village settlement in the Rock Islands. Due to a limited ability to grow crops on the islands, marine resources were the major food source for these communities. Important marine foods harvested included inshore and pelagic bony and cartilaginous fish, turtles, mollusks, sea urchins, crabs, lobsters, saltwater crocodiles and dugongs. Shells were also widely used to make tools, such as knives, chisels and scrapers, cooking and eating utensils, ornaments, ceremonial items, and shell money.

Archaeological deposits show the history of marine resource use through time. During the earliest human activity on the islands, from 3100 years ago, marine resource use focused on the collection of easily accessible foods, such as large clams and inshore fish species. When more permanent settlements were established from 1200 AD, the use of marine resources greatly increased, with an estimated total population of between 4000 and 6000 people in the Rock Islands relying on fisheries as the main food source (Masse *et al.*, 2006). The diversity and numbers of fish caught increased during this time, and included pelagic fish such as tuna and mackerel sharks. Archaeological deposits indicate fish stocks were overharvested and did decline during the period of permanent settlement, with several species showing a significant reduction in size. There is also evidence that the easily accessible large clams harvested thousands of years ago were significantly depleted to the point where people had to seek other species for food.

After the abandonment of Rock Island villages by the 1700s, Palauans continued to fish and harvest in the RISL. As the RISL surrounds Koror, the major population centre of Palau, the area continues to be an extremely important and heavily relied on area for fisheries. Many locals practice subsistence fishing, and the fish caught are an important food source for many families. An increase in the number of boats owned by local families over the last decade or so has helped people gain easier access to fish stocks. However, there is considerable concern about the decline in fish stocks for many species, both in size and abundance. For ceremonial purposes where a large number of fish is needed, this can mean a considerable amount of fishing time.



Netfishing for reef fish. Photo by Ann Kitalong.

The area is also important for commercial fisheries, and therefore an important source of income for local commercial fishermen. However, there are regulations in place which ban non-locally owned commercial enterprises from fishing in the RISL, which therefore limits the commercial fisheries in the area.

## Tourism/Recreational Values

Tourism is the most economically important industry in Palau, being the largest income source for the nation's private sector. Expenditure by international visitors in 2005 was estimated to have equaled ~ 45% of Palau's GDP (TACP and Clark, 2008). The tourism industry in Palau is continually growing, with the number of tourists visiting Palau doubling in the last decade, from ~ 55,000 in 2000, to over 109,000 tourists in 2011 (PVA, 2012).

The RISL is the foundation of Palau's tourism industry, with the majority of visitors coming to visit the area, primarily for marine based activities such as diving, snorkeling and kayaking.

The RISL is known as a one of the world's top class destinations for divers, and the majority of dive sites in Palau are within the RISL. In 2011, a total of 102,201 permits to visit the RISL were sold to tourists, compared to the total of 109,057 tourists visiting Palau that year. This shows that the vast majority of tourists are visiting the RISL. The 2004 Palau tourism valuation survey showed that over 86% of interviewed tourists had visited the RISL (Office of Planning and Statistics, 2004). According to the 2008 Tourist Action Plan for Palau, 57% of tourists to Palau visit Jellyfish Lake in the

RISL, with hundreds of visitors per day (TACP and Clark, 2008). The sale of Rock Island and Jellyfish Lake Permits alone generated over \$3.4 million in 2011.



Divers in the RISL. Photo by Paul Collins.

Whilst the majority of tourism in the RISL is currently focused on the natural marine environment, there is great opportunity to develop other tourist markets, particularly cultural and historical tours. The designation and future marketing of the RISL as a World Heritage Site is also expected to generate further world interest in the area and an expansion of tourism.

The RISL is also an important area for recreational use by the local community, particularly since many families now own boats. As the majority of people live in Koror, the surrounding RISL is therefore the most directly accessible area for boat trips to fish and visit the beaches. The recreational value to people also ties in with the cultural values of the area, with people able to use the area as they have done for centuries. There are several local only sites within the RISL, which is important so that tourism does not detract from local enjoyment and use of the area.

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