

## TABLE OF CONTENTS

1. FOREWORD	2
2. ACKNOWLEDGEMENTS	3
3. INTRODUCTION	4
4. THE VISION	6
5. THE GOALS	7
6. THE ISSUES	8
7. THE ACTIONS	10
8. IN DETAIL	11
9. TIME FRAME AND RESPONSIBILITIES	28
10. APPENDICES	32

# **1 FOREWORD**

We, the Jaluit Atoll community, our traditional leaders and elected representatives, are concerned over increasing trends of resource depletion within our atoll. We want to develop a plan that will protect our environment while allowing sustainable use of our atoll's natural resources.

We have already begun this process by establishing the Jaluit Atoll Conservation Area (JACA) in 1999. This was done through the combined efforts of the Jaluit Atoll Development Association (JADA), the Conservation Area Coordinating Committee (CACC), the Jaluit Atoll Local Government (JALG), the traditional leaders, the communities and the RMI Environment Protection Authority (RMIEPA) and the Conservation Area Support Officer (CASO).

Becoming a Conservation Area means that the local communities, the Jaluit Atoll Local Government (JALG), the RMI national government and we the community have committed ourselves to conserving and sustainably managing our local environment.

To guide us in the management of the Conservation Area we have, with the help of many people developed this Management Plan. This plan demonstrates our commitment to manage our precious resources and heritage for our community and our children.

Iroij Anjua Loeak

Iroij Imata Kabua

Hon. Alvin Jacklick, Minister of Health

Hon. Rien Morris, Minister of Internal Affairs

Hon. Antari Jason, Mayor, Jaluit Atoll

## 2 ACKNOWLEDGEMENTS

Many people have contributed to this Plan including, the staff of the Republic of Marshall Islands Environmental Protection Authority (RMIEPA), especially Mr. John Bungitak, Mr. Julian Alik, Mr. Albon Ishoda and Ms. Deborah Parker. On Jaluit Atoll, Mr. Albon Ishoda (RMIEPA), Mr. Miram Ankeid (CASO), Mr. Maity Bungitak (assistant to the CASO) and Mr. Aldon Jacklick (councilman and traditional leader). The national government Ministers Mr. Tadashi Lometo, Mr Alvin Jacklick and Mr Rien Morris and Department Directors, Mr. Danny Wase (MIMRA) and Mr. Mark Steges (MIVA) and Mr. Augustine Nakamura (Jaluit Atoll City Manager).

The background research and consultation for development of this Management Plan is documented in the report “*Jaluit Atoll Conservation Area Environmental Resource Management Plan – Background Report* prepared by Steve Lindsay, Director of Micronesian Aquaculture & Marine Consultancy Services and Robin Aiello, Marine Biologist & Ecotourism Consultant.

The South Pacific Regional Environment Programme (SPREP) supports the management of the JACA, through the International Coral Reef Action Network (ICRAN) Pacific Action Phase funded by UNF-UNEP. SPREP support is coordinated by Mary Power, Coastal Management Adviser and Elizabeth Patterson, Project Support Officer, Coastal Management.

ICRAN is funded by the United Nation Foundation through the UN Environment Program (UNEP). It is dedicated to halting degradation of coral reefs worldwide with a focus on establishing a global network of ‘Demonstration Sites’ of Marine Protected Areas that use good management practices and involve local communities. Jaluit Atoll is one of the Pacific ‘Demonstration’ sites and the development of the Jaluit Atoll Resource Plan of Management is part of this support.

### 3 INTRODUCTION

We, the Jaluit Atoll community, our traditional leaders and elected representatives, are concerned over increasing trends of resource depletion within our atoll. We want to develop a plan that will protect our environment while allowing sustainable use of our atoll's natural resources.

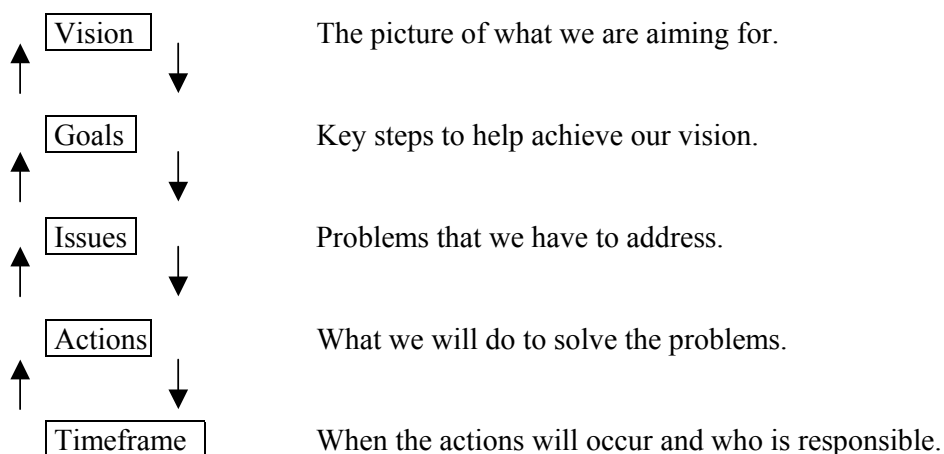
We began this process in 1999 by establishing the Jaluit Atoll Conservation Area (JACA). The strategy goals for the Conservation Area are:

**Strategy Goals:**

1. A sustainable Marine Resource Management Plan,
2. A sustainable Terrestrial Resource Management Plan,
3. Community-based management structures,
4. Alternative income generating activities (e.g. ecotourism, handicraft),
5. Public awareness, training and education programs, and
6. Capacity building to enable communities to effectively manage the Conservation Area.

This Management Plan aims to meet goals 1 and 2 of the Strategy Goals, while also being a step in the right direction to help achieve goals 3,4,5 & 6.

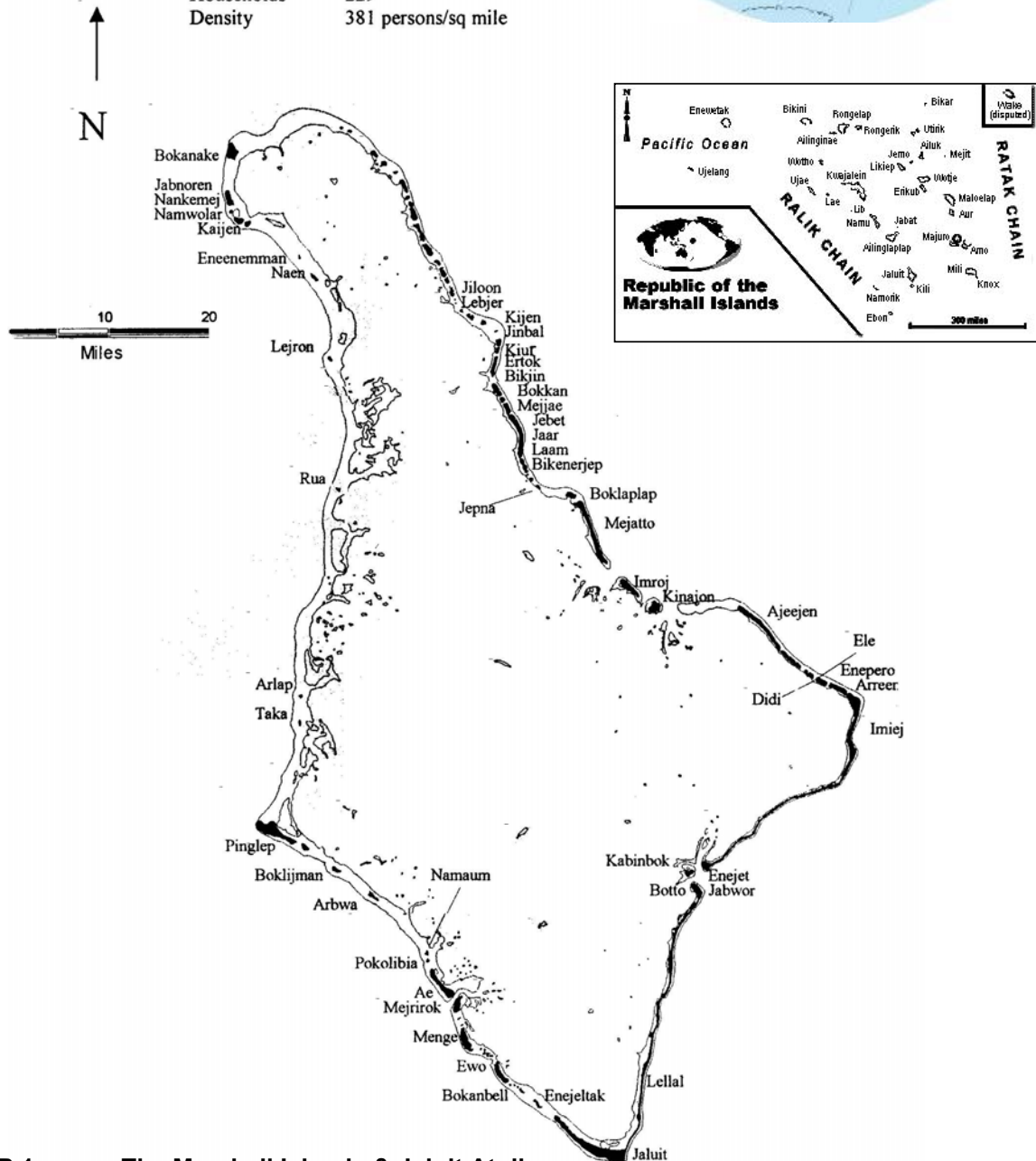
This Plan describes:



The community in consultation with the government has developed this Plan. It has full acceptance and support from the community and the government (both local & national), and will be implemented by the CACC and CASO.

## Jaluit Atoll

Lagoon area	266.31 sq miles
Land area	4.38 sq miles
Population	1669
Households	229
Density	381 persons/sq mile



**MAP 1: The Marshall Islands & Jaluit Atoll**  
(Note: the Conservation Area covers the entire atoll)

## 4 THE VISION

*“We the people of Jaluit Atoll  
will strive to conserve and sustainably manage the biodiversity of the  
atoll for the subsistence and the social-economic needs of the  
present and future generations”*



## 5 THE GOALS

Put simply, we wish to manage our resources, so that, we have enough food to eat, live in a beautiful place, can practise our culture, and have the opportunity to generate income from our resources. We want our children, and our children's children to also be able to enjoy these benefits.

To achieve our vision we have identified five key management goals that will help to us address the major issues facing Jaluit Atoll.

### **Management Goals**

#### **1. Conservation**

- To conserve and where possible restore the biodiversity of our atoll's resources.
- To manage the use of the atolls resources to cater for our needs on a sustainable basis.

#### **2. Community Involvement and Support**

- To have all users of the atoll (the community and people off-island) understand the reason and need for active management of the atolls resources.
- To have all users of the atoll actively involved in the management of the atolls resources.

#### **3. Commercial Use**

- To make sure that all commercial operators that fish in the atoll do not harvest more than is sustainable.
- To support initiatives that use ecological sustainable practises.
- To explore alternative sources of income for our community.

#### **4. Ecotourism**

- To Support nature-based ecotourism in a manner that is compatible with the other goals.

#### **5. Information**

- To obtain information about our natural resources to help us manage them sustainably.
- To monitor the use and condition of our resources over time.



## 6 THE ISSUES

Currently, there are three major issues that we need to address to achieve our goals and vision:

1. **The level of marine and terrestrial resources that are harvested** on the atoll (being used for subsistence living, to send off island, for special occasions and for commercial use).
2. **The impact of shore based activities** on the atoll's marine environment, such as mangrove clearing, coral/sand dredging, solid waste disposal and sewage dumping.
3. **The level of environmental awareness** and the importance of looking after our natural resources, and to have the need for **ownership and involvement** of all of us in the implementation of the plan and ongoing management activities.

### Level of Resource Use

Currently all residence of Jaluit Atoll use the natural resources to meet their daily subsistence needs. In addition, resources are harvested to meet on and off island social and family commitments.

Commercial harvesting of resources provides an economic opportunity for the residence of the atoll. However, all commercial activities in the past have resulted in over harvesting of the target animals (e.g. trochus, sea cucumbers) causing drastic stock population declines.

With all these demands there is a risk that the natural resources may run out and some species could be lost forever. If this occurs it could leave us, the communities of Jaluit with a limited supply of food and reduced opportunities to make money.

### Impact of Shore Based Activities

Several shore-based activities that impact on the Atoll's environment were identified during community consultations. Although these activities are limited, especially when compared to Majuro and Ebeye, the recent increase in urbanisation at the atoll centres, Jabwor and to a lesser degree Jaluit Jaluit, have still resulted in some negative impacts.

#### *Examples of Shore-Based Impacts*

- **Land Clearing** - clears vegetation and increases erosion and sediments being discharged into the lagoon.
- **Shoreline and Coral Dredging** - destroys coastal habitats, is unattractive, increases and causes erosion and sediment being discharged into the lagoon.
- **Solid Waste Pollution** – is unattractive and leads to water and soil contamination.
- **Sewage Pollution** - leads to water and soil contamination and can also result in increased algal growth in nearby lagoons that can cause coral reef death.



A recent example of a shore-based impact is preparations for a paved road between Jabwor and Jaluit Jaluit. This development activity caused an increased in the clearing of the coastal vegetation along the road, which led to sediment entering the lagoon. Multiple dredging sites were also used and impacted on the coastal processes and the lagoon's coastline.

Solid waste on the Atoll is also a problem. As there is only a limited amount of land space, strategies need to be put in place to cope with the increase in solid waste, which is getting worse with increased development.

#### **Level Of Environmental Awareness**

Traditionally, *Iroij* own all land and water resources within a community's jurisdiction. By birthright, *Iroij* have absolute power, including all resource use, preservation and management.

As part of this, traditionally some areas were set aside as 'No-Take' zones (Mo's), where the removal of any plants or animals was forbidden.

This system however, has weakened with time and more and more of the resource management responsibility, especially with marine resources, now falls under the responsibility of the Local Government Council.

Unfortunately, this change has led to a slow decline in traditional awareness of resource values and has resulted in the over harvesting of resources and a decline in sustainable management practices.

An understanding of why the atoll's resources are important and how the community can help to look after them is a key factor in achieving sustainable resource management.

## 7 THE ACTIONS

To address these issues and help us achieve our goals and vision we have decided on the following actions:

### **LEVEL OF RESOURCE USE**

1. We will designate Mo, Sanctuary and other special management zones
2. We will put in place bans on certain activities that apply to the entire Atoll (Atoll-Wide Bans).
3. We will establish a Marine Monitoring Program to provide information that will help us manage our marine resources.

### **IMPACT OF SHORE BASED ACTIVITIES**

4. We will adopt and ask others to adopt *Best Environmental Practices (BEP's)* to limit impacts from development and tourism activities.
5. We will seek assistance to develop a *Waste Management Plan* to limit impacts from solid waste and sewage disposal.
6. We will ask the government to make sure *that Environmental Impact Studies and Management Plans* are requested for all development projects on Jaluit Atoll.

### **INVOLVEMENT AND OWNERSHIP OF COMMUNITY**

7. The CACC and CASO will keep us, the community informed of implementation of the plan and other relevant matters.
8. The CACC and CASO will coordinate an intensive on-going atoll wide public resource use awareness and education program.
9. The CACC and CASO will assist with the regulation of the actions and activities in the Management Plan.

## 8 IN DETAIL

### LEVEL OF RESOURCE USE - Zones

**Action 1. We will designate Mo, Sanctuary and Other Special Management Zones, and mark them so they can be easily identified.**

We on Jaluit Atoll wish to conserve and properly manage our atoll's marine and terrestrial resources. We hope to achieve this by using traditional management practices, specifically the system of taboo areas called 'Mo' combined with new management practices and other management "zones".

#### ***THE ZONES***

We have decided on a management system with three different zones. **Mo, No-Take Sanctuary, and General Use.** Each zone will have specific restrictions on what activities can be done in that area.

#### **Mo's**

Mo - traditional community-owned areas that have been designated for **Subsistence Use** by resource owners. Collection of resources for commercial use or for special occasions is not allowed. Activities such as diving and snorkelling are allowed when particular rules are met, and permission is given.



- There are fifteen (15) Mo, owned by nine (9) communities.
- They cover approximately 30% of the Atoll.

**Mo Zones are shown in green on the Zoning Maps.**

**(Appendix 2)**

#### **No-Take Sanctuaries**

These are areas where there can be no removal of the resources. These "no take zones" allow natural processes to happen without impact.

We have selected Sanctuary zones using the following three criteria:

1. *Ecological significance*  
(e.g. species and habitat diversity, spawning areas).
2. *Cultural importance* to the local community.
3. *Need for immediate conservation.*



- There are fourteen (14) No-Take Sanctuaries.
- They cover approximately 10% of the Atoll.

**Sanctuary Zones are shown in red on the Zoning Maps.**

**(Appendix 2)**

### General Use Zone

This zone includes all areas outside the Mo and Sanctuary areas, both inside the lagoon, on land, and up to 200 meters (600 feet) offshore outside the atoll.

All activities (except Atoll-Wide Banned activities) are allowed within this zone.



- It covers approximately 60% of the Atoll.

**General Use  
Zones are shown  
in white on the  
Zoning Maps.**

**(Appendix 2)**

**Table 1. Summary of Zones & Activities**

<b>MO</b>	
<b>WHAT IS ALLOWED</b>	<b>WHAT IS NOT ALLOWED</b>
<ul style="list-style-type: none"> <li>✓ <b>Subsistence harvesting</b> –but only if people are associated with that particular Mo.</li> <li>✓ <b>Special Occasion harvesting</b>– but only if people are associated with that particular Mo.</li> <li>✓ <b>Ecotourism Activities</b> (diving &amp; snorkelling) – but only with prior agreement from the communities.</li> </ul>	<ul style="list-style-type: none"> <li>⊗ <b>Commercial harvesting.</b></li> <li>⊗ <b>Resources for sending off island.</b></li> <li>⊗ <b>All Atoll-wide Banned Activities.</b></li> </ul>
<b>SANCTUARY</b>	
<b>WHAT IS ALLOWED</b>	<b>WHAT IS NOT ALLOWED</b>
<ul style="list-style-type: none"> <li>✓ <b>Ecotourism Activities</b> (diving &amp; snorkelling) – but only with prior agreement from the community.</li> </ul>	<ul style="list-style-type: none"> <li>⊗ <b>Subsistence harvesting.</b></li> <li>⊗ <b>Special Occasion harvesting.</b></li> <li>⊗ <b>Commercial harvesting.</b></li> <li>⊗ <b>Sending off island harvesting.</b></li> <li>⊗ <b>All Atoll-wide Banned Activities.</b></li> </ul>
<b>GENERAL USE</b>	
<b>WHAT IS ALLOWED</b>	<b>WHAT IS NOT ALLOWED</b>
<ul style="list-style-type: none"> <li>✓ <b>Subsistence.</b></li> <li>✓ <b>Special Occasion.</b></li> <li>✓ <b>Commercial harvesting.</b></li> <li>✓ <b>Send off island harvesting.</b></li> <li>✓ <b>Ecotourism</b>—only with prior agreement from the communities</li> </ul>	<ul style="list-style-type: none"> <li>⊗ <b>All Atoll-wide Banned Activities.</b></li> </ul>

**Table 2: Details of Activities in each Zone**

ACTIVITIES	GENERAL USE	MO	SANCTUARIES
<b>Subsistence</b> resource harvesting	Yes	Yes	No
<b>Special Occasion</b> resource harvesting	Yes	Yes	No
<b>Off-Island Demand</b> resource harvesting	Yes	No	No
<b>Commercial</b> resource harvesting	Yes	No	No
<b>Ecotourism</b> diving & snorkelling	Yes	Yes	Yes
<b>Spearfishing**</b>	Yes	Yes only for subsistence	No
<b>Shell collecting*</b>	No	No	No
<b>Relic collecting*</b>	No	No	No
<b>Sea Cucumber</b> collecting*	No	No	No
<b>Shark Fishing*</b>	No	No	No
<b>Turtle hunting*</b>	No	No	No
<b>Seabird hunting*</b>	No	No	No
<b>Black Pearl collecting*</b>	No	No	No

\* - This activity is an Atoll-wide banned (prohibited) activity

\*\* - Spearfishing cannot be conducted at night with underwater torches

### **MARKING THE ZONES**

All Mo and Sanctuary boundaries need to be marked for easy recognition. The marker, such as a mooring buoy, should be standard for the atoll, clearly visible and colour coordinated to show what zone they define. Latitude and longitude coordinates and further details for marking procedures can be found in Appendix 1.

### **Suggested Colour Coded Buoys (Floats):**

<b>Green Buoy</b>	Mark the corners of each Mo.
<b>Red Buoy</b>	Mark the corners of each Sanctuary.
<b>White Buoy</b>	Mark dive site moorings (see Background Report).

**Steps for Action 1:**

*The Zone Boundaries once generally agreed by each community will be clearly defined and incorporated into local council ordinances, and passed into atoll legislation by June 2003. Details of zone boundaries are in **Appendix 1**.*

*Each Mo and Sanctuary will be clearly marked on land and water to allow easy identification by September 2003. Details of mooring buoy system found in Background Report.*

## **LEVEL OF RESOURCE USE – Atoll-Wide Bans**

### **Action 2 We will place Atoll-Wide Bans on certain Activities**

We have decided that Atoll Wide bans on certain activities are required to protect some species. These bans will allow current populations to mature, reproduce and repopulate the reefs of the atoll. In time, this should allow the species to repopulate and all activities be allowed again.

**Table 3: Atoll Wide Banned Activities.**

<b>Banned Activity</b>	<b>Reason</b>
⊗ Clam harvesting - commercial & sending off-island.	All species of clams are over-harvested.
⊗ Trochus harvesting.	Trochus have been over-harvested.
⊗ Sea Cucumber harvesting.	Commercial species of sea cucumbers have been over-harvested.
⊗ Black Pearl Oyster harvesting.	Pearl oysters are currently over-harvested.
⊗ Shark fishing.	Sharks are a major component of the reef and are ecotourism attractions providing potential income to all communities.
⊗ Turtle and egg harvesting.	Turtles are a major ecotourism attraction, and can easily be hunted to local extinction.
⊗ Seabird and egg harvesting.	Seabirds are a major ecotourism attraction, and can easily be hunted to local extinction.
⊗ Destructive fishing techniques (chlorine, cyanide, dynamite).	Destructive fishing is illegal in the RMI. It should be specifically banned in Jaluit Atoll.
⊗ Spearfishing on SCUBA.	Spearfishing on SCUBA is an unsustainable fishing practice and can lead to overfishing.
⊗ Commercial Spearfishing at night with underwater flashlights.	Spearfishing with lights is an unsustainable fishing practice that can lead to overfishing.
⊗ Unsustainable Fishing Practises (e.g. small size gill nets).	These are unsustainable fishing practices that can lead to over fishing.
⊗ Relic Collecting.	Relic collecting takes them away from the atoll.
⊗ Live Fish Trade.	Live fish collecting usually targets fish that are an important food subsistence food source and are also major ecotourism attractions.
⊗ Live rock & coral collecting.	Removal of live rock and coral damages large sections of the reef.
⊗ Dredging or mining.	Digging causes damage to marine environments, and increases sedimentation.
⊗ Aquarium Fish collecting.	Aquarium fish collecting targets fish that are also ecotourism attractions.



**Steps for Action 2:**

*We will ask the local government to put the atoll wide banned activities into local ordinances and pass into legislation by June 2003.*

## **LEVEL OF RESOURCE USE – Marine Monitoring Program**

<b>Action 3.</b>	<b>We will establish an on-going Marine Monitoring Program to provide information that will help us manage our natural resources.</b>
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Resource monitoring gives us information on the health and extent of resources in our atoll. This helps us to manage our resources sustainably and allows us to review and change our management strategies when needed.

A Marine Resources Base-line Survey was done in 1999 (SPREP 2000). The survey contained information on numbers of target species. This will form the basis of our monitoring program. To collect information required to help us manage our resources we will need to have a monitoring program that will run for many years.

There will be 6 parts to the monitoring program.

### ***Part 1. Atoll Wide Marine Assessment***

**Atoll-wide rapid assessment** of the state of marine resources will be undertaken every year to provide a general assessment of the health of all marine habitats and resources within the atoll. This will require the assistance of EPA and MIMRA.

### ***Part 2. Monitoring Effects of Atoll Wide Bans***

**Atoll-wide bans** on particular species will be reviewed using the information from the atoll wide assessment. This will help us to work out if the species are in decline or they have recovered enough to allow subsistence and/or commercial activities to occur again.

### ***Part 3. Monitoring Fish Catches for the Fish Base Project***

**Monitoring of the commercial activities associated with Fish Base** will be undertaken continuously. It is essential that standard length/weight frequency data of all caught fish is collected on a regular basis.

### ***Part 4. Monitoring Spawning Aggregation Sites***

There needs to be investigations into reef location and timing of fish **spawning aggregations** within the atoll (within the next 2 years).

### ***Part 5. Evaluating Specific Species Status***

**A resource assessment** will be undertaken to work out the, locations, and abundance and population size of mangrove crab, coconut crab and turtle populations within the atoll.

### ***Part 6. Training at local and government levels***

We will have **training programs** on resource management and marine monitoring issues for people that have a direct involvement in the management of the atoll resources eg: CASO, volunteers and government officers.

**Steps for Action 3:**

*The **Marine Monitoring Program** will be initiated in 2000, based on the 1999 Marine Resource Survey. The Fish Base data collection and analysis program, and the atoll-wide marine resource assessments, will be priority actions. Capacity building and training will be an important component.*

We will explore *the possibility of having an international volunteer* work with CACC and the CASO officer to start the monitoring program

*All new commercial marine-harvesting activities will be prohibited until enough information has been collected to develop management plans for specific resources. This will be put into ordinance and reviewed as resource conditions improve.*

## **IMPACT OF SHORE BASED ACTIVITIES – Best Practices**

**Action 4. We will adopt and ask others to adopt Best Environmental Practices (BEP's) and Best Cultural Practices to limit impacts from development and tourism activities.**

### ***BEST ENVIRONMENTAL PRACTICES (BEP'S)***

Best Environmental Practices are rules people follow to help reduce the impact of activities on the environment. They are used throughout the world as a management tool.

BEP's can be developed for tourist activities or for any development activities on the atoll. It is best to develop BEP's before the impacts of the activities starts to degrade the resources.

Below are examples of 'Best Environmental Practices' for Tourists.

**Table 4. Example of Best Environmental Practices for Tourists**

<b>Marine Life</b> (for example: corals, clams, fish, sea cucumbers, snails)	
× No touching, or moving animals.	× No feeding animals.
× No collecting or taking animals out of the water.	× No fishing.
× No hassling, chasing, or poking animals.	× No spearfishing.
<b>Littering</b>	
× No littering	
× Do not throw away cigarette butts.	
<b>Historic Relics</b> (for example: glass bottles, parts of ships or airplanes, bones)	
× No touching or moving – leave them where they are.	
× No collecting or removing from water.	
× No breaking or smashing.	
<b>Dive Site Moorings</b>	
× No anchoring on the reef - dive boats must drift or use dive site moorings.	

### ***BEST CULTURAL PRACTICES***

Best Practises can also be used to help reduce negative cultural impacts. Several issues and concerns about tourists visiting Jaluit Atoll were raised during our consultations meetings. These concerns included:

- Inappropriate dress (e.g. shorts, bikinis and mini-skirts),
- Inappropriate behaviour (e.g. loud voices),
- Trespassing into private or taboo areas,
- Little fore-warning about groups arriving in Jaluit,

- Failure of divers to get permission from communities and the JALG,
- Little financial gain by local communities or business, and
- Collecting of historic relics (glass bottles) and shells.

Below are examples of Best Practise Guidelines for dealing with cultural impacts.

**Table 5: Best Cultural Practices for Tourists.**

**Community Permission**

- × Community permission must be granted before diving at any site.
- × Divers must be aware of what zone they are in – Mo, Sanctuary or General Use.

**Visiting a Community**

- × Respect all community members - say hello, smile and talk with them.
- × Wear long shorts and a shirt – do not wear bikinis and short-shorts.
- × Do not wander off uninvited.

**Guides**

- × A local guide must accompany all dive boats and land tours.
- × Respect the decision of the guide.
- × Follow all rules.

Best Environmental and Cultural Practices can also be built into specific plans, such as a Dive Industry Plan. With the potential growth of the dive industry in Jaluit Atoll, a Dive Industry Development Plan would be useful to guide diver's behaviour (environmentally and culturally) as well as addressing the industry's training and capacity building needs. See Appendix 3 for more details.

**Steps for Action 4:**

***We will adopt Ecotourism Best Environmental Practises (BEP's) and Best Community Practices (BCP's) and put these into local ordinances as appropriate. They will be well advertised (communities, tourists and ecotourism operators) and reviewed regularly to make sure they address changing community concerns and needs.***

***BEP's and BCP's may include a User Fees system that will be negotiated between the CACC and each community.***

## **IMPACT OF SHORE BASED ACTIVITIES – Waste Management**

<b>Action 5.</b>	<b>We will seek assistance to develop a Waste Management Plan to limit impacts from solid waste and sewage disposal.</b>
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Two major concerns for us on Jaluit Atoll are solid wastes from household garbage and sewage disposal. Currently the levels of pollution and waste on our Atoll are increasing, particularly in the larger communities of Jabwor and Jaluit Jaluit. It is clear that this will continue to be a problem and will get worse in the future.

### ***TYPES OF WASTE***

There are several types of waste found on our atoll. All types of waste need to be managed so that we do not harm the fragile environment of our atoll.

#### **Common Types of Waste**

##### **Household Waste**

Currently, household garbage (paper, plastics, steel, batteries) is dumped directly into family or community owned landfill pits. The larger garbage pits are open and are commonly located on the lagoon side of the atoll. During periods of high tides and strong winds lots of rubbish from these sites gets pushed into the lagoon. This can cause contamination of the ocean waters.

##### **Sewage**

Most houses use septic systems that link to underground reservoirs or go directly into the sea. Their way of sewage disposal can cause contamination of surface and/or ground water.

##### **Oily Waste**

Oily waste is a small part of all the overall waste on the atoll. It includes waste oil from the power stations generators, personal generators, outboard engines and car engines. Currently the power company stores all the waste oil from the generators in 55-gallon steel drums and ships them to Majuro. Leakage into the ground can cause contamination of soil and ground water.

##### **Organic Waste**

Most organic waste on the atoll is recycled and used as garden fertilizer or food for domesticated animals (pigs).

### ***WASTE MANAGEMENT PLAN***

As a community we don't have a strong awareness of the dangers and problems from these wastes on us or on our environment. We would like to get assistance from the government to develop an **Atoll Wide Waste Management Plan**. This Waste Plan should include information on the dangers of waste and the correct ways of disposal.

**Steps for Action 5:**

*We will seek assistance to undertake a **Waste Management Assessment** and to develop a **Waste Management Plan** that will address community concerns about increasing pollution by poor solid waste and sewage disposal. We will try to have the Plan developed by December 2004, and start implementation by June 2005.*



### **IMPACT OF SHORE BASED ACTIVITIES – Environmental Impacts**

<b>Action 6.</b>	<b>We will ask the government to make sure that Environmental Impact Studies and Management Plans are required for development projects.</b>
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Major developments and construction activities can have an impact on our atoll's resources and environment. New developments and construction activities need plans that clearly state what actions will be taken during construction to minimise any negative impacts on our environment.

We recognise that it is not the community's role to regulate building and development works, therefore we ask the government to take care in making sure that all new development proposals for Jaluit Atoll have the correct and required environmental assessments.

#### **Steps for Action 6:**

*The CACC will ask the government to notify them of any new developments that are occurring on Jaluit Atoll that may affect the atoll's resources.*

*The government (EPA) will require an Environmental Impact Assessment and Environmental Management Plan for future development activities within Jaluit Atoll.*

**INVOLVEMENT AND OWNERSHIP OF COMMUNITY – Sharing Information**

**Action 7.                    The CASO and CACC will keep the Community informed of the implementation of the plan**

This Plan has been developed through a series of formal and informal meetings and workshops held on Majuro and Jaluit Atoll. People involved in these meetings and workshops included, traditional leaders, landowners, local government and Conservation Area Coordinating Committee (CACC) members, elected national government representatives, staff from several government agencies and people from Jaluit Atoll community.

Part of the success of this plan will be the continued support and interest from our communities. It is important that there is on-going open communication between the CACC and the community, particularly in regards to reporting on the progress of the implementation of the plan.

**Steps for Action 7:**

*The CASO and CACC will organise Formal and informal community meetings and stakeholder discussions to talk about plan and other atoll resources management issues. This will occur on a regular basis with a formal meeting at least every 3 to 4 months.*

**The CASO will keep the communities informed of the progress of the plan.**

*Feedback will be used to update this Plan. This Plan will be reviewed and updated by the CACC in 2005.*

**INVOLVEMENT AND OWNERSHIP OF COMMUNITY – Public Awareness Programs**

**Action 8.           The CACC and CASO will coordinate an intensive on-going atoll wide public awareness and education program.**

The success of any Management Plan relies heavily on the support and acceptance of the community. To help gain support and acceptance for this Plan the CACC and CASO will run a strong public awareness program.

These programs will cover information on:

- What the Plan is for,
- Who the Plan affects,
- What the Actions are,  
for example:
  - Where the Mo and Sanctuaries are located.*
  - What activities are allowed, and what are banned.*
  - What are the penalties for a breach of the Plan?*
- Who is responsible for carrying out the Plan, and
- How the actions are implemented.

The CASO will target all groups including, church groups, women's groups, youth groups, sport groups, primary schools, high schools, local government, our community and communities from other atolls.

We will seek the assistance of an international volunteer with awareness raising and education type skills to work with the CASO to develop and conduct the public awareness program.

**Steps for Action 8:**

*The RMI government will investigate getting an international volunteer to work with CASO to develop and conduct Awareness Raising Program. Investigations for a volunteer should start by September 2003.*

*The CASO and CACC will develop an Awareness Raising Program by June 2003. This will be an on-going program.*

**INVOLVEMENT AND OWNERSHIP OF PLAN BY THE COMMUNITY – Enforcement of the Plan**

**Action 9. CACC and CASO will coordinate the enforcement of the actions and activities in the Management Plan in conjunction with the local and National Government**

Enforcement of the rules in this Plan, especially the ones relating to the zones and atoll wide bans, will be important to the success of the Plan. Key issues that will help us to achieve successful enforcement include, public awareness, community support, reliable enforcement, manpower and strong government and agency support.

To strengthen the Plan we have also decided that the Jaluit Atoll Local Government Council should make a law (local ordinance) relating to the Conservation Area and the Plan (example Ordinances can be found in Appendix 4).

There are a few options for the enforcement of the regulations on the Atoll, including government rangers to be recruited and enforce the regulations, or to train local community members as community rangers (further details about the pros and cons of each option can be found in the Background Report).

As each community has access to a fishing boat from the Fish Base project, we have decided that the best enforcement option is for our own community members (particularly boat divers) to be trained as community rangers and help enforce the regulations in their area.

This will be done with the assistance of the local and national governments and in cooperation with MIMRA (and the Fish Base), the JALG, the RMIEPA, CACC and CASO

Below are some details and issues involved in setting up this enforcement system.

**Enforcement Details & Issues**

**Community Mo Rangers**

The drivers of these fishing boats would become the Mo Rangers. They would be responsible for patrolling and enforcing their own community's Mo (s).

**Coordinator and Coordinating Committee**

The coordination of this option would be jointly the responsibility of the CASO officer and the MIMRA Fish Base Manager under the direction and support of the CACC.

**Expenses**

By sharing MIMRA boats, some of the costs are also shared. However, who pays expenses such as salaries and petrol costs would have to be negotiated. Most of it would have to be externally funded.

**Concerns**

Due to the usage of the boats during the time the Fish Base is purchasing fish the communities would not have any boats available for surveillance during this period of time.

**Steps for Action 9:**

**The Community Ranger Program will be established by ordinances and implemented by December 2003 (example of ordinances in Appendix 4).**

***Rangers will be trained in details of the zones, atoll bans and other enforcement skills. This will start by December 2003 and will be ongoing.***

## 9. TIME FRAME AND RESPONSIBILITIES

ISSUE	NUMBER	ACTION	STEPS	TIIMING	RESPONSIBLE GROUPS
<b>Level of Use</b>	<b>1</b>	<b>Designate Mo, Sanctuary</b> and other special management zones.	The Zone Boundaries once generally agreed by each community clearly defined and incorporated into local council ordinances, and passed into atoll legislation.	June 2003	Local government CACC
			Each Mo and Sanctuary clearly marked on land and water to allow easy identification.	September 2003	CACC
	<b>2</b>	<b>Atoll Wide Bans</b> put in place on certain activities.	Local government to put the atoll wide banned activities into local ordinances and pass into legislation.	June 2003	Local government CACC
	<b>3</b>	<b>On-going Marine Monitoring Program</b> to be established.	Funds need to be secured for professional technical assistance.	December 2003	RMI EPA
			International volunteer work with CACC and CASO officer to start the monitoring program.	September 2003	CACC RMI EPA
			All new commercial marine-harvesting activities prohibited and made into ordinance until enough information has been collected to develop correct management plans for specific resources. This would be reviewed as resource numbers increase.	June 2003	CACC Local Government National Government

ISSUE	NUMBER	ACTION	STEPS	TIMING	RESPONSIBLE GROUPS
<b>Impact of Shore Based Activities</b>	<b>4</b>	<b>Best Environmental Practices (BEP's)</b> for development and tourism activities, adopted.	Ecotourism Best Environmental Practises (BEP's) and Best Community Practices (BCP's) developed and put into local ordinances.	June 2004	RMI EPA CACC Local Council
			Need to be well advertised (communities, tourists and ecotourism operators) and reviewed regularly.		
			Any BEP's and BCP's with User Fees system need to be negotiated between the CACC and each community.	September 2004	Jaluit Atoll Community CACC
	<b>5</b>	<b>Waste Management Plan</b> developed with help from government.	Initial waste assessment completed by December 2004. Information to be used to develop a Waste Management Plan. The plan must address pollution by solid waste and sewage disposal.	Implemented June 2005	RMI EPA CACC Jaluit Community
	<b>6</b>	<b>Environmental Impact Studies and Management Plans</b> for developments on Jaluit Atoll be requested of government.	CACC to be informed by the government of any new developments that are occurring on Jaluit Atoll that may affect the atoll's resources.	Ongoing	National Government CACC
			Environment Impact Assessments mandatory for all future development activities within Jaluit Atoll.	Ongoing	National Government
<b>Involvement of the Community</b>	<b>7</b>	<b>Community Updated</b> on Progress of Plan.	Formal and informal community meetings and stakeholder discussions about plan and other resource management issues.	Ongoing (possibly every 6 months)	CASO
			CASO to keep community informed about the progress of implementation of the plan.	Every 6 months	CASO
			Feedback from community discussion and meetings will used to help update this Plan. Review and update of Plan to be coordinated by CACC in 2005.	Dec 2005	CACC Jaluit Community RMI EPA



ISSUE	NUMBER	ACTION	STEPS	TIIMING	RESPONSIBLE GROUPS
	8	<b>Atoll Wide Awareness and Education Program</b> developed and implemented by CASO.	<p>CASO to develop an Awareness Raising Program. The program should include:</p> <ul style="list-style-type: none"> <li>▪ Importance of the Atoll's natural resources to community well-being.</li> <li>▪ Reason for different actions.</li> <li>▪ Explanation of how it will all work.</li> <li>▪ Role of the community in the Plan.</li> </ul>	<p>Developed by June 2003</p> <p>Begin implementation September 2003</p> <p>On-going</p>	CASO International Volunteer if recruited
			RMI government investigate getting an international volunteer to work with CASO to develop and conduct Awareness Raising Program. Investigations for a volunteer should start by March 2003 to have volunteer in place by Sept 2003.	September 2003	RMI EPA CASO CACC
	9	<b>Community Ranger Program for Coordination of Regulation</b> of action and activities in Plan.	Mo Community Rangers need to be trained in details of the zones, atoll bans and other enforcement skills.	December 2003.	CACC RMI EPA Jaluit Community

## SUMMARY OF TIME FRAME

June 2003	September 2003	December 2003	June 2004	September 2004	December 2004	June 2005	September 2005	December 2005
Ordinance for Atoll Wide bans.  Ordinance for zoning system.  Mark Zones.  Ordinance to stop any new commercial activities.	Secure international volunteer to help implement plan.	Enforcement. Ordinances.  Mo Rangers trained.  Find Funds for monitoring.	Develop Awareness Program.  Develop BEP, BCP.	Implement Awareness Program.  Negotiate User Pay system.	Complete Waste Assessment (information to be used to develop Waste Plan).	Develop Waste Program and Implement Waste Program.	Commence Review of Plan.	Finish Review of Plan
<b>Ongoing Activities</b> Meeting with community to update on progress of plan and other Atoll resource management issues. Information updates to community (maybe newsletter) on progress of Plan. Government to inform CACC or any development on Jaluit Atoll.								

## 9 APPENDICES

### APPENDIX 1.

## Marking Mo & Sanctuary Boundaries

### MARKING THE ZONES

Suggested Procedure for marking management zones.

- **On land** - Use landmarks (eg tree) or a length of PVC pipe embedded in the ground.
- **In the water** - Markings should be fixed buoys or mooring sites secured to the reef.
- **Shallow water mooring locations:** All buoys (floats) should be attached to the reef using a stainless steel rod and loop attached directly to a large coral head and secured. A smaller submersed float should be attached below the surface on all sites to assist in keeping the mooring rope off the reef and act as a safety line if the main float is lost (e.g. storm conditions).
- **Deep water moorings locations:** All buoys (floats) should be attached to a concrete block, of a size no less than half a meter square (1.5 feet square) with a steel rod and loop embedded in the concrete and attached to the surface as mentioned above.
- **A minimum of 4 buoys (floats) must be used to mark each Mo and Sanctuary zone** These should be located on each boundary of the zone. Additional floats/markers may be required in cases when the zones are large. Each marking location must be visible from each other.
- **Colour coded buoys (floats):** Buoys should be coloured coded so that the zone can be easily recognised. The following colours are suggested so that they match the zone colours on the maps.

#### **SUGGESTED BUOY COLOURS:**

<b>Green Buoy</b>	Mark the corners of each Mo.
<b>Red Buoy</b>	Mark the corners of each Sanctuary.
<b>White Buoy</b>	Mark dive site moorings (see Background Report marking diving areas).

- **Reuse old buoys (floats):** It is recommended that buoys (floats) that have washed up onto the islands of the atoll be used for these purposes.

## **ZONE BOUNDARIES**

All Mo and Sanctuary boundaries have been identified by the use of latitudinal and longitudinal coordinates obtained from the use of a hand held Global Positioning System (GPS). Details are presented in below.

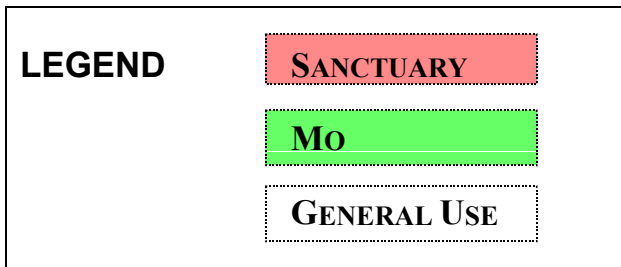
**Latitude and longitude coordinates for Mo's and Sanctuaries.**  
**Please refer to Maps 1 – 9 in Appendix 2.**

Community	Mo	Latitude, Longitude	Sanctuary	Latitude, Longitude
Jitoken	<b>Matolen Mo</b>	A. 169.41061, 6.29472 B. 169.42334, 6.27706 C. 169.44134, 6.30843 D. 169.45447, 6.28714 E. 169.47815, 6.29835 F. 169.48253, 6.29214 G. 169.47304, 6.28892	<b>Matolen Sanctuary</b>	C. 169.44134, 6.30843 D. 169.45447, 6.28714 E. 169.47815, 6.29835 F. 169.48253, 6.29214 G. 169.47304, 6.28892
	<b>Likin Woden Mo</b>	A. 169.41766, 6.24531 B. 169.42764, 6.25519 C. 169.43921, 6.25469 D. 169.45172, 6.23843 E. 169.43985, 6.23230 F. 169.45310, 6.21289 G. 169.47077, 6.22493	<b>Likin Woden Sanctuary</b>	D. 169.45172, 6.23843 E. 169.43985, 6.23230 F. 169.45310, 6.21289 G. 169.47077, 6.22493
Mejae	<b>Takaen an Lāben Mo</b>	A. 169.45310, 6.21289 B. 169.47077, 6.22493 C. 169.51972, 6.22783 D. 169.55332, 6.19804 E. 169.54682, 6.17217 F. 169.56172, 6.14852 G. 169.56114, 6.13345 H. 169.55645, 6.13165 I. 169.45887, 6.18836 J. 169.47254, 6.18862 K. 169.48160, 6.17274 L. 169.46323, 6.17135	<b>Bird Island Sanctuary</b>	I. 169.45887, 6.18836 J. 169.47254, 6.18862 K. 169.48160, 6.17274 L. 169.46323, 6.17135
Pinglep	<b>Dri Bako Mo</b>	A. 169.46323, 6.17135 B. 169.4883, 6.1732 C. 169.4618, 6.0029 D. 169.4433, 5.9979 E. 169.4252, 5.9492 F. 169.4598, 5.9296 G. 169.4703, 5.9399 H. 169.48673, 5.90941 I. 169.49967, 5.91815	<b>Dri Bako Sanctuary</b>	A. 169.46323, 6.17135 B. 169.4883, 6.1732 C. 169.4618, 6.0029 D. 169.4433, 5.9979
			<b>Pinglep Island Sanctuary</b>	F. 169.4598, 5.9296 G. 169.4703, 5.9399 H. 169.48673, 5.90941 I. 169.49967, 5.91815
	<b>Lorā Mo</b>	H. 169.48673, 5.90941 I. 169.49967, 5.91815 J. 169.49642, 5.89873 K. 169.50521, 5.90477	<i>No designated Sanctuary</i>	

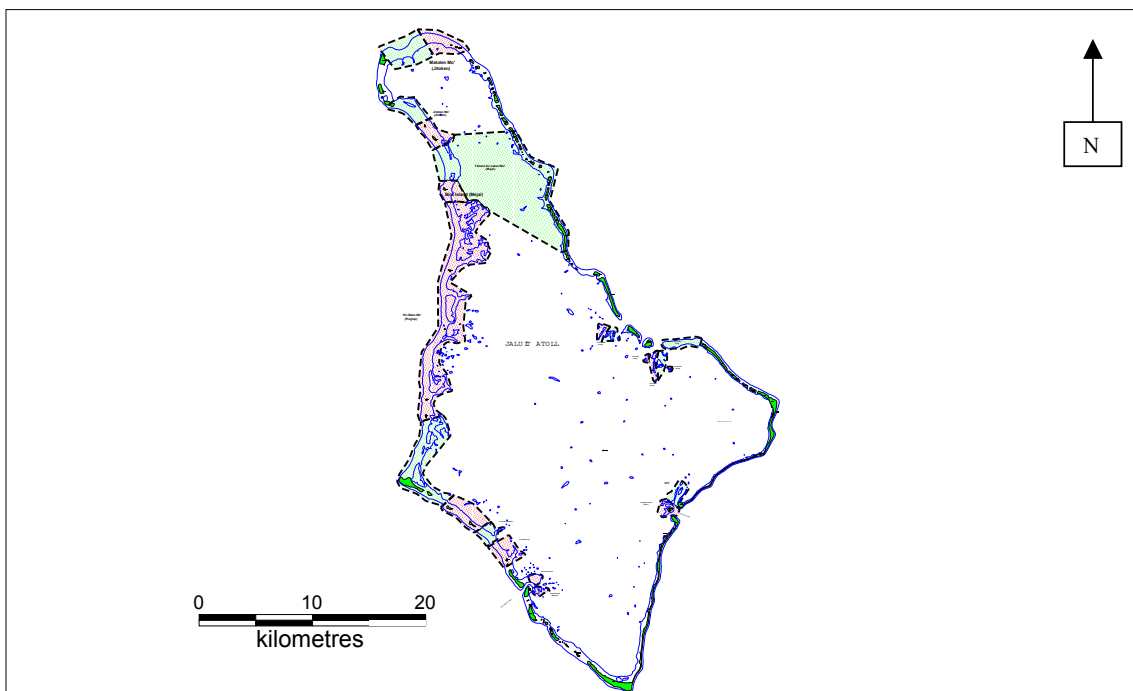
Community	Mo	Latitude, Longitude	Sanctuary	Latitude, Longitude
Ae	<b>Lorā Mo</b>	<i>Entire Mo is a designated Sanctuary</i>	<b>Lorā Sanctuary</b>	A. 169.49763, 5.89808 B. 169.51032, 5.88142 C. 169.52750, 5.89180 D. 169.51437, 5.90773
	<b>Enindo Mo</b>	<i>Entire Mo is a designated Sanctuary</i>	<b>Enindo Sanctuary</b>	A. 169.5298, 5.8760 B. 169.5382, 5.8768 C. 169.5415, 5.8740 D. 169.5384, 5.8690 E. 169.5310, 5.8700
Mejrirok	<b>Wodenlap Mo</b>	<i>Entire Mo is a designated Sanctuary</i>	<b>Wodenlap Sanctuary</b>	A. 169.53441, 5.88661 B. 169.53681, 5.8671 C. 169.54494, 5.8651 D. 169.54662, 5.8643 E. 169.53876, 5.8590 F. 169.53505, 5.8597 G. 169.53270, 5.8617
Enejat	<b>Bar Mo</b>	A. 169.63916, 5.93648 B. 169.65887, 5.95732 C. 169.67258, 5.94508 D. 169.65056, 5.92807	<i>No designated Sanctuary</i>	
Jabwor	<b>Karajraj Kan Mo</b>	<i>Entire Mo is a designated Sanctuary</i>	<b>Karajraj Kan Sanctuary</b>	A. 169.63257, 5.92566 B. 169.63511, 5.93516 C. 169.63931, 5.93609 D. 169.65032, 5.92800 E. 169.64832, 5.92269 F. 169.63661, 5.92144
Imiej	<b>Reijok Mo</b>	A. 169.66804, 6.0361 B. 169.66567, 6.0561 C. 169.63660, 6.0564 D. 169.63617, 6.0621	<i>No designated Sanctuary</i>	
Imroj	<b>No No Mo</b>	A. 169.63752, 6.05371 B. 169.64027, 6.04983 C. 169.64032, 6.04596 D. 169.63762, 6.03753 E. 169.63252, 6.02885 F. 169.62935, 6.02978 G. 169.62566, 6.04415 H. 169.62551, 6.04782 I. 169.63164, 6.05376	<b>No No Sanctuary</b>	F. 169.62935, 6.02978 G. 169.62566, 6.04415 H. 169.62551, 6.04782 I. 169.63164, 6.05376 J. 169.63122, 6.04100 K. 169.63299, 6.03464
	<b>Jea Ko Mo</b>	<i>Entire Mo is a designated Sanctuary</i>	<b>Jea Ko Sanctuary</b>	A. 169.64019, 6.04058 B. 169.64500, 6.04081 C. 169.64374, 6.03721 D. 169.64041, 6.03774
	<b>Kiliek Mo</b>	<i>Entire Mo is a designated Sanctuary</i>	<b>Kiliek Sanctuary</b>	A. 169.62143, 6.04481 B. 169.62322, 6.05055 C. 169.62551, 6.04782 D. 169.62566, 6.04415 E. 169.62575, 6.04423
	<b>Lokuben Mo</b>	A. 169.59498, 6.07280 B. 169.60007, 6.07191 C. 169.60280, 6.06188 D. 169.58823, 6.06110 E. 169.58426, 6.06202 F. 169.58475, 6.07295 G. 169.58561, 6.07516 H. 169.58798, 6.07541	<b>Lokuben Sanctuary</b>	A. 169.59498, 6.07280 D. 169.58823, 6.06110 E. 169.58426, 6.06202 F. 169.58475, 6.07295 G. 169.58561, 6.07516 H. 169.58798, 6.07541

## APPENDIX 2.

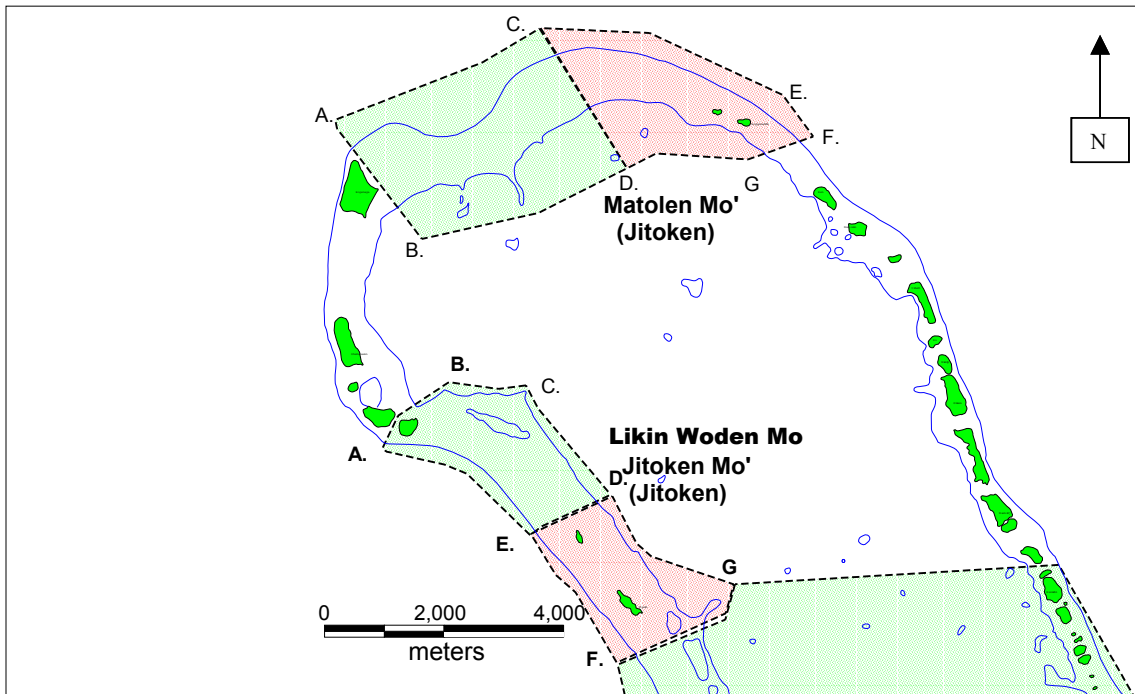
### Maps of Zones



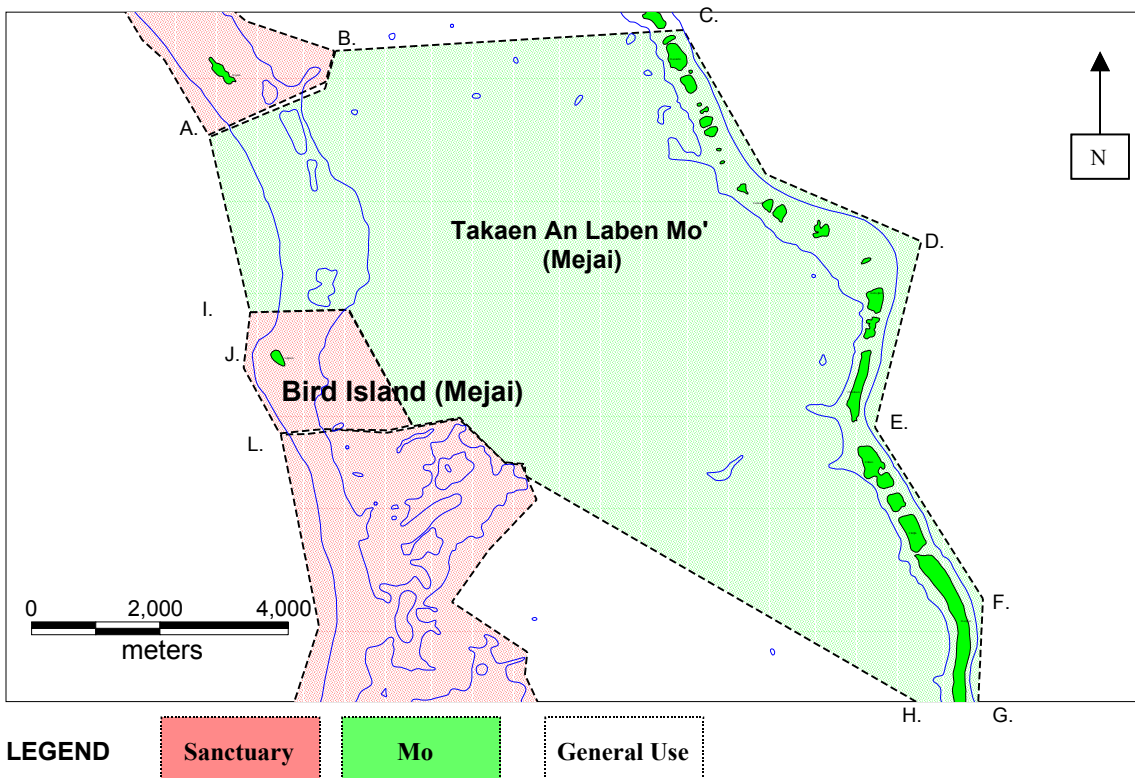
**Map 1. Jaluit Atoll**  
*Traditional Mo and Sanctuaries.*



**Map 2. Jitoken Community, Jaluit Atoll**  
*Traditional Mo and Sanctuaries.*

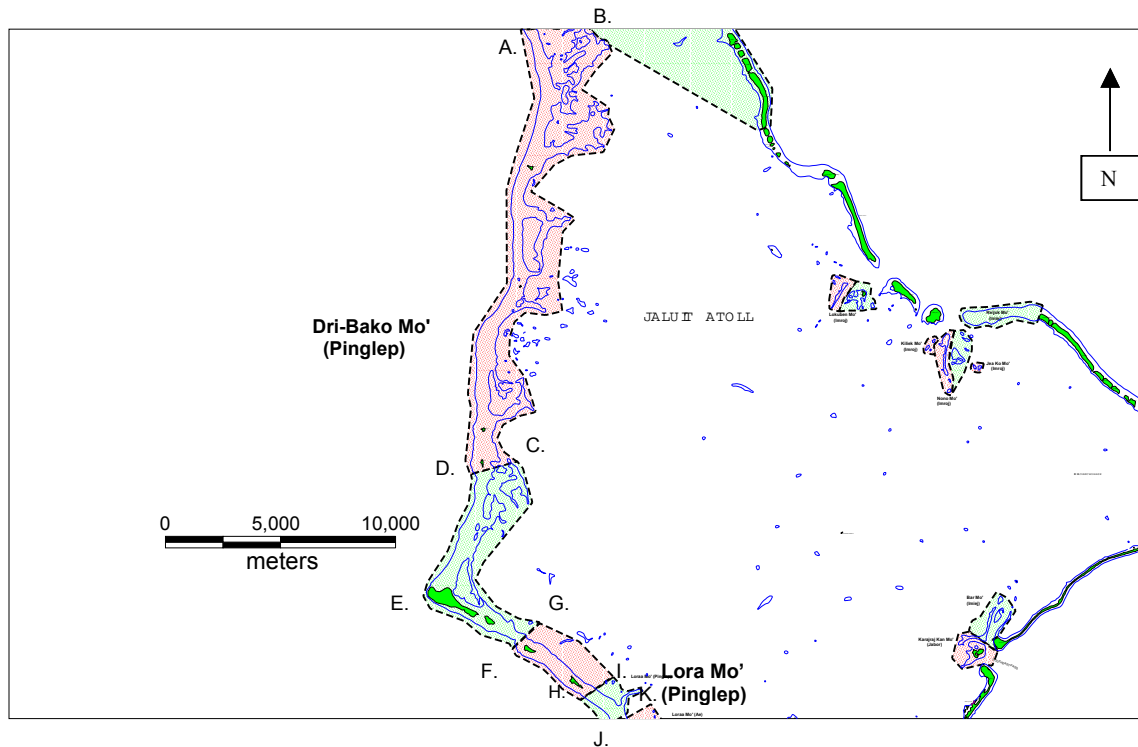


**Map-3. Mejai Community, Jaluit Atoll**  
*Traditional Mo and Sanctuaries.*

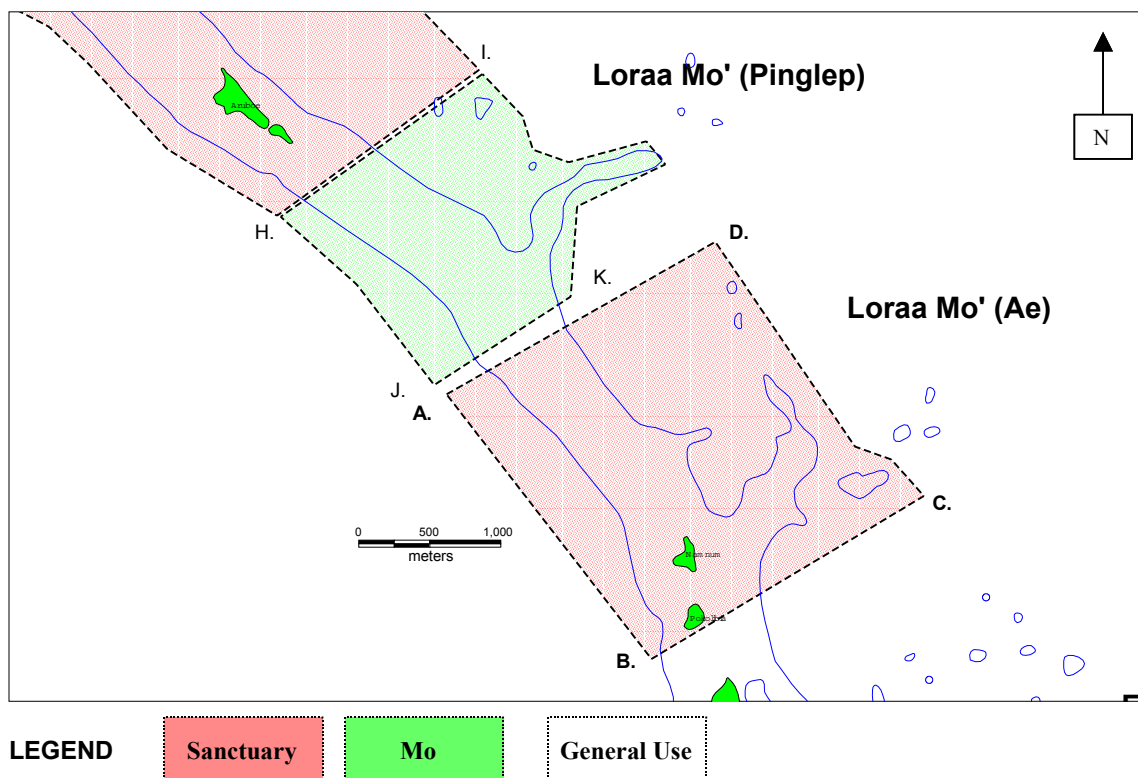




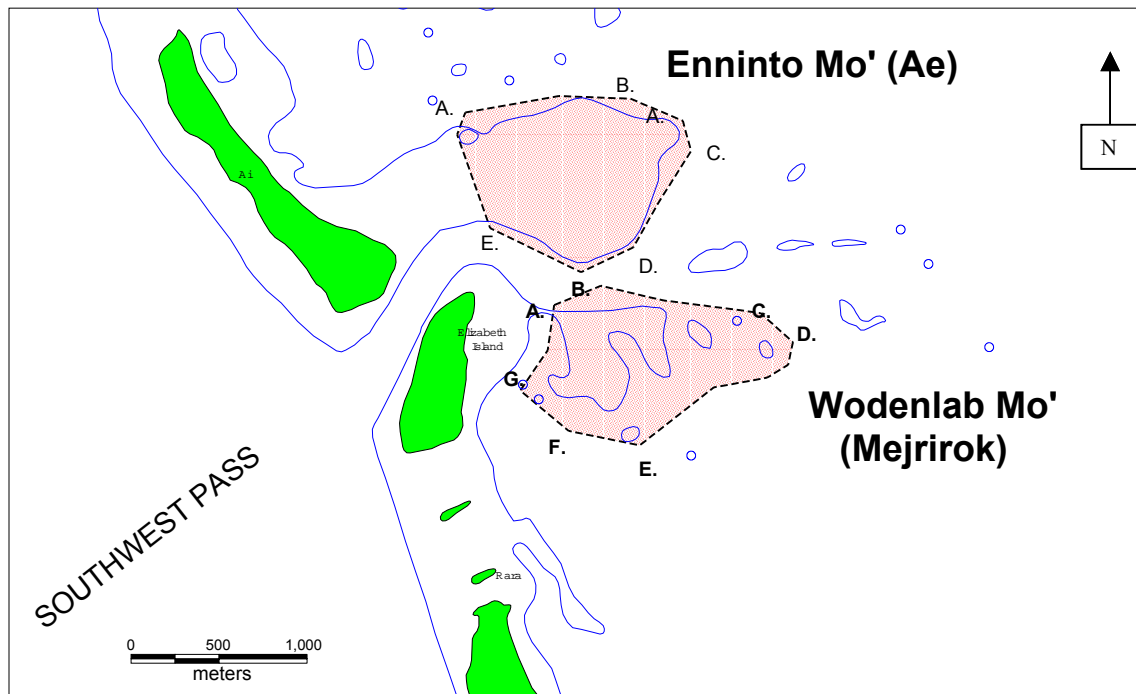
**Map 4. Pinglep Community, Jaluit Atoll.**  
*Traditional Mo and Sanctuaries.*



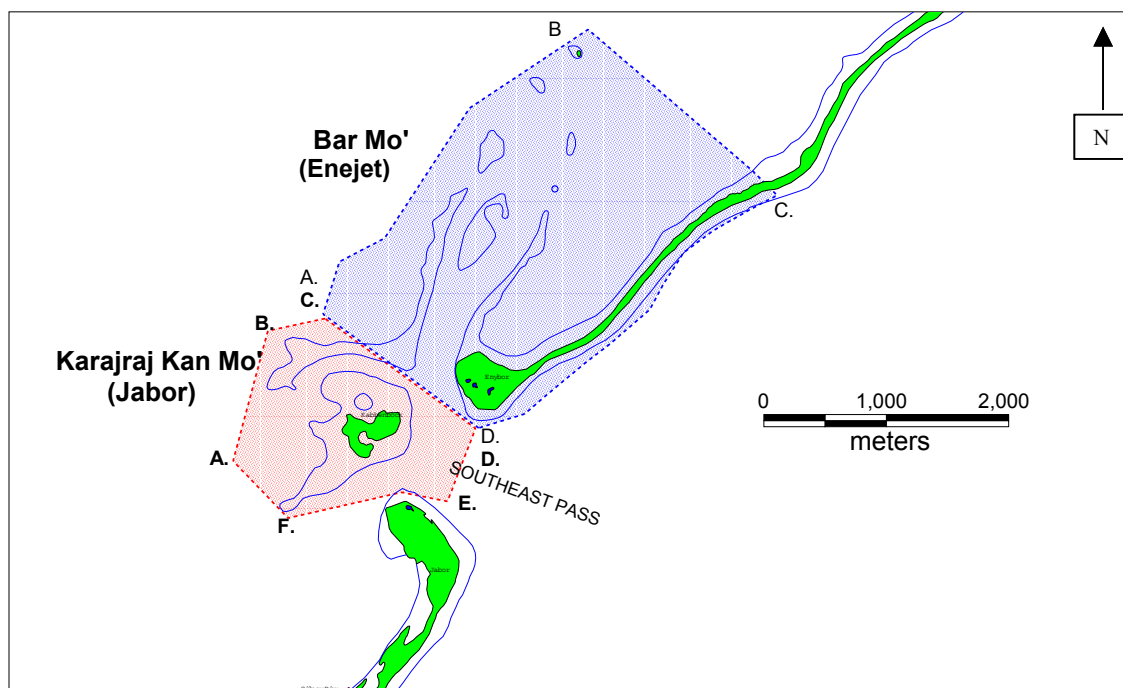
**Map 5. Pinglep and the Ae Communities, Jaluit Atoll**  
*Traditional Mo and Sanctuaries.*



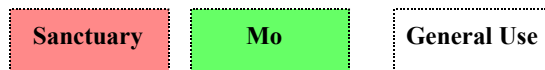
**Map 6. Ae and the Mejrirok Communities, Jaluit Atoll.**  
*Sanctuaries.*



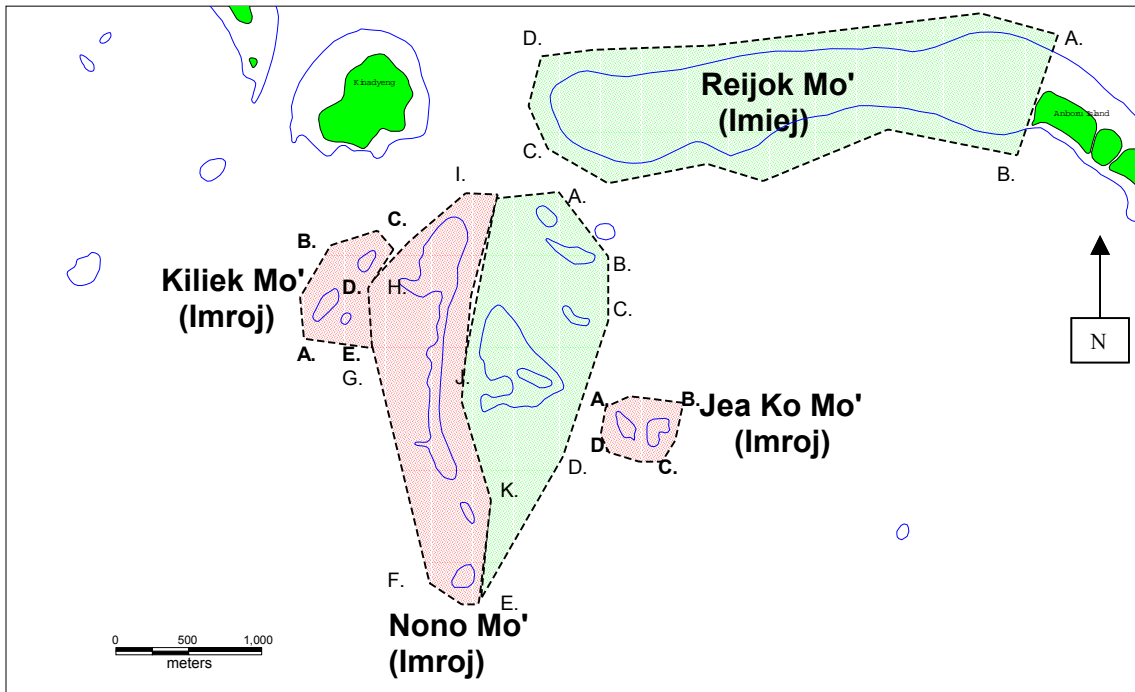
**Map 7. Jabor and Imiej Communities, Jaluit Atoll**  
*Traditional Mo and Sanctuaries.* (Note: Bar Mo should be coded green, not blue)



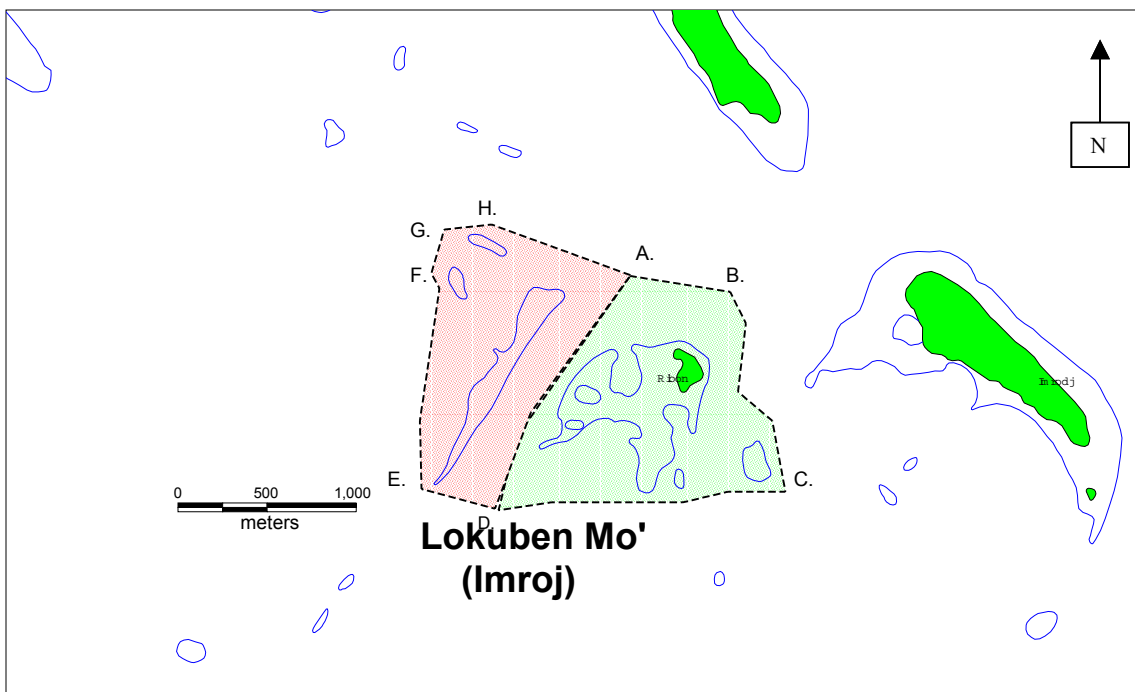
**LEGEND**



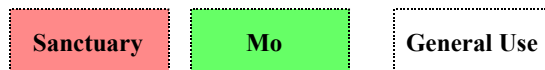
**Map 8. Imiej and Imroj Communities, Jaluit Atoll.**  
*Traditional Mo and Sanctuaries.*



**Map 9. Imroj Community, Jaluit Atoll.**  
*Traditional Mo and Sanctuary.*



**LEGEND**



## **APPENDIX 3.**

### **Outline for the Development of a Dive Industry Plan**

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Scuba diver damage is widely recognised throughout the world. Research studies clearly demonstrate that poorly managed diving and snorkelling can lead to high levels of impacts. Potential environmental impacts include standing on and breaking marine life (e.g. corals), collecting marine life (e.g. live and dead shells, coral), collecting historical relics, trampling vegetation, and littering.

With the potential growth of the dive industry in Jaluit Atoll, it would be useful to have a Dive Industry Development Plan that guides training and infrastructure needs as well as divers behaviour.

#### **A Dive Plan should include the following elements**

- Dive site inventory.
- Dive site ownership issues.
- Environmental Impact Assessment.
- Training needs analysis.
- Capacity building of local staff, especially in the area of Dive Master and Instructors.
- Growth potential analysis.
- Stakeholder inventory.
- Public awareness issues with communities and dive operators.
- Vessel mooring system.
- Risk assessment.
- Emergency evacuation plan.
- Marketing strategy.

## APPENDIX 4.

### Enforcement Information

#### ***Suggested Draft Ordinances:***

Ordinance
Designate the Jaluit Atoll Plan of Management as legislation.
Designate the boundaries of all Mo and Sanctuaries within the atoll utilising the latitudinal and longitudinal coordinates.
Designate all Sanctuaries within the atoll as “no-take zones”.
Designate all Mo's within the atoll as ‘subsistence-only zones’ and clearly define the activities that are allowed, and those that are banned.
Designate all Atoll-wide Bans.
Ban all coral, shell and relic collecting (e.g. tourists).
Make the payment of User Fees mandatory for all tourist activities.
Make it mandatory for all tourists to follow all Best Environmental Practices and Best Community Practices as stated in the Guidelines for Divers.
Designate the need for a local guide to be present on all tourist boat or land tours.
All future development on Jaluit Atoll be undertaken using Best Environmental Practices & Minimal Impact Practices.
Dive operation boats will not anchor on the reef – but either drift or use a Dive Mooring.