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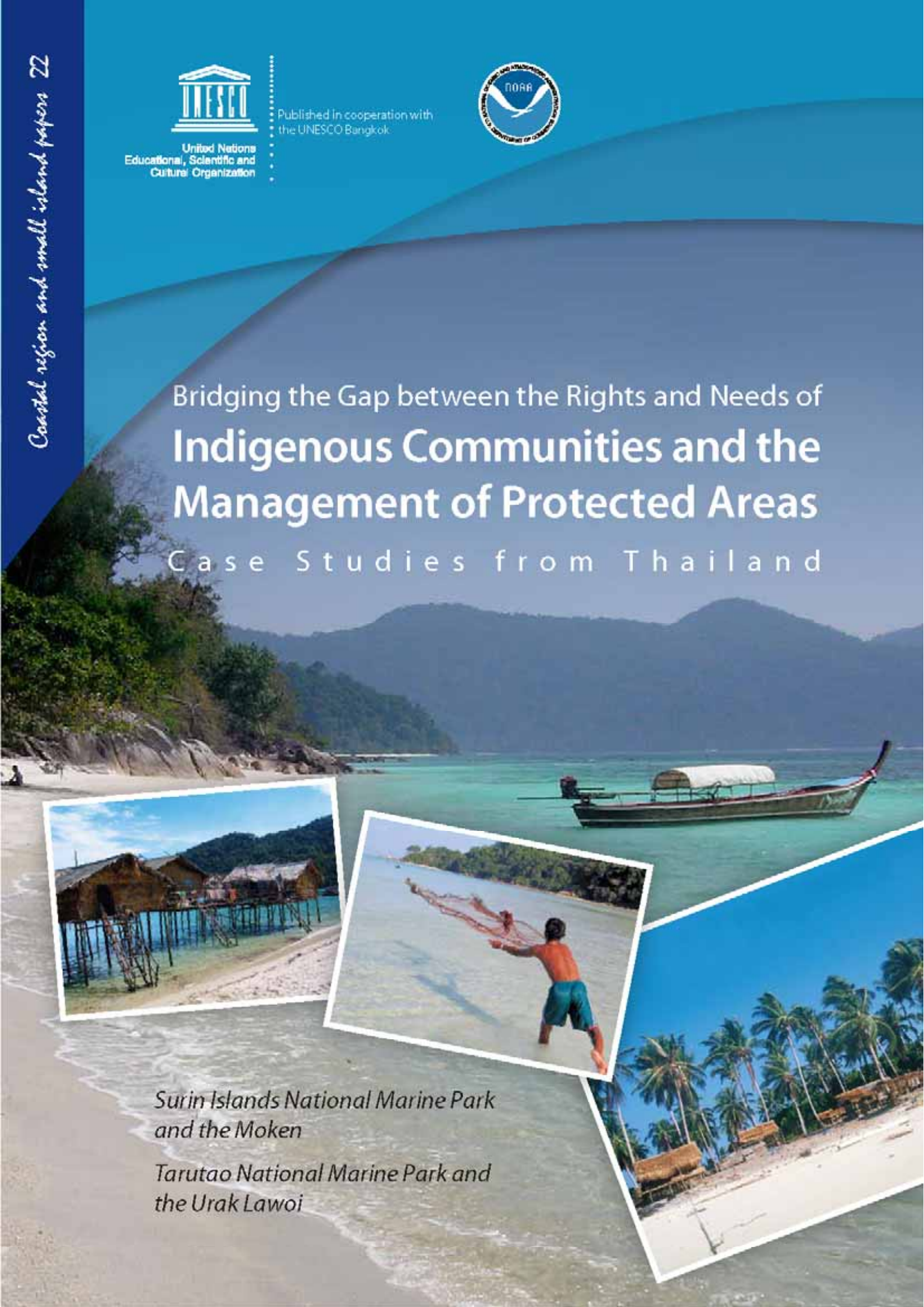
Bridging the Gap between the Rights and Needs of Indigenous Communities and the Management of Protected Areas

Case Studies from Thailand



Surin Islands National Marine Park and the Moken

Tarutao National Marine Park and the Urak Lawoi

GEOATLAS® WORLD VECTOR - GRAPHI-OGRE® - France - 1997
MAYANMAR
LAOS
THAILAND
Bangkok
Phuket
MALAYSIA
INDONESIA
N
Ko Stork
Ko Surin Nua
Fisheries station
Ko Pajumba
Park Headquarters
Surin Islands
Ko Surin Tai
Ko Torinla
N
Adang Archipelago
Pulaw Rawi
(Rawi Island)
Pulaw Hadak
(Adang Island)
Patay Panyak Tapor
Patay Panyak Bagat/
Patay Panyak Somchay
Telo' Cengan
Telo' Puya
Telo' Priyat
Pulaw Betok
(Tong Island)
Telo' Aye Besor
Tupo'
Padak
See Keang
U-Sen
Pulaw Nipih
(Lipe Island)
Park station
Village

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Bridging the Gap between the Rights and Needs of

Indigenous Communities and the Management of Protected Areas

Case Studies from Thailand

Surin Islands National Marine Park and the Moken

Tarutao National Marine Park and the Urak Lawoi

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Foreword

Broad recognition of the complex interrelationships between poverty and the environment underlines the need for local-level participation in the design and implementation of sustainable development policies. Accordingly, building on the notion of 'neopopulism,' emphasis arose during the 1980's on basic needs, decentralisation, community participation and the use of indigenous knowledge. The approach is analogous to that of 'sustainable development' as expressed in the Brundtland Report, advanced at the United Nations Conference on Environment and Development (UNCED) and now implemented through the Decade of Education for Sustainable Development (ESD) (2005-2014), for which UNESCO has been appointed the lead agency.

The seas of South-East Asia are home to unique groups of people, often euphemistically called sea gypsies. They have travelled the region for centuries living on boats and in temporary settlements along the coasts of southern Thailand, the Philippines, Indonesia and Malaysia, and to the far north in the Mergui Archipelago of present-day Myanmar.

In Thailand, almost 10,000 sea nomads remain dispersed over the coastal area and numerous islands of the Andaman Sea. These people belong to three distinct communities, the Moken, Moklen and Urak Lawoi, each with its own set of cultural traditions and language.

Since 1998, the Andaman Pilot Project, funded by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) has focused on action research to achieve sustainable development on these islands as well as cultural heritage conservation among the indigenous peoples living there.

With generous funding from the National Oceanic and Atmospheric Administration (NOAA), the project was able to build upon this work and contribute to the development of a model for equitable governance for the sustained conservation of the natural and cultural diversity in the marine protected areas of the Andaman Sea. The NOAA Coral Reef Conservation Grant Programme was authorized under the United States Coral Reef Conservation Act of 2000, and provides matching grants of financial assistance for international coral reef conservation projects. We would like to thank NOAA for its support, and particularly Leah Bunce, her valuable assistance.

Prior to the region being designated a "national park," which consequently increased tourism development and commerce in the area, the indigenous population lived harmoniously with their environment. While the small population was historically able to forage for food in a vast area with little competition or scarcity problems, pressure from park rules and regulations and a growing competition for natural resources have led to increased pressure on the environment.

In line with NOAA's International Coral Reef Conservation Grants Programme to promote socio-economic monitoring in coral reef management, this project provides up-to-date socio-economic data of the Surin Islands and the Adang Archipelago. It offers insights into the local people's way of life and their relationship with the prized coral reefs and terrestrial resources. It also provides an aid for decision-makers, policy makers and planners to identify opportunities and difficulties in managing the region's natural resources through tailored initiatives that are locally appropriate and which have the greatest potential for success.

While the original report was compiled before the devastating 2004 tsunami, an addendum has been added to address the post-tsunami situation. We believe this resource is particularly pertinent for ensuring that the continued relief and development activities in the region are locally acceptable and holistically successful.

Sheldon Shaeffer
Director
UNESCO Asia and Pacific
Regional Bureau for Education

Dirk G. Troost
Chief (ret.)
UNESCO Coasts and
Small Islands Platform

Preface

Conserving natural resources through protected area designation is a relatively common practice throughout the world. Increasingly, difficulties have arisen in balancing the rights and needs of local and indigenous communities living in or near protected areas with the need to protect the environment. Socio-economic data can assist in further understanding the needs of these communities, but it is largely under-used in protected area management plans due to the common misconception that human communities in and around protected areas are incompatible. Consequently, the collection of socio-economic data and the development of associated databases will enable protected area managers to create and implement appropriate protected area management policies and practices.

Articles 46, 56, 79 and 290 of Thailand's 1997 Constitution confer explicit community rights to protect and manage the natural environment and resources. Consequently, several initiatives seek to enact this right in the context of protected area management. The Department of National Parks, Wildlife and Plant Conservation housed in the Ministry of Natural Resources and Environment has created the Protected Area Innovation Unit (PAIU) that seeks to implement innovative approaches and practices in protected area management. PAIU's work highlights the importance of understanding the socio-economic realities of all protected area stakeholders. This knowledge is essential in order to develop a joint management plan for protected areas and to ensure that affected communities are able to maintain socio-economic and cultural integrity.

For nearly ten years, the Andaman Pilot Project, which is supported by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) and, most recently, the United States National Oceanic and Atmospheric Administration (NOAA), has facilitated research on the indigenous "sea gypsy" communities that inhabit two of Thailand's national marine parks in the Andaman Sea: the Moken of the Surin Islands National Marine Park and the Urak Lawoi of Tarutao National Marine Park in the Adang Archipelago. The Pilot Project has focused on collecting socio-economic data about the Moken and Urak Lawoi and working with stakeholders to foster an enhanced understanding of the communities' indigenous ways of life, build community capacity, identify economic options that promote cultural survival as well as natural conservation and encourage a co-operative approach to the protection of the natural and cultural heritage of the Surin Islands and the Adang Archipelago.

The collection of socio-economic data for the Andaman Pilot Project was facilitated through the use of Socio-economic Monitoring Guidelines for Coastal Managers in Southeast Asia (SocMon SEA), which is a set of guidelines developed in 2003 by the World Commission on Protected Areas and the Australian Institute of Marine Science. SocMon SEA was used as a tool to understand the socio-economic status of the Moken and Urak Lawoi communities and to monitor the overall impact of protected area management on their livelihoods. Indicators to measure socio-economic status were developed from existing data collected during earlier phases of research, supported by UNESCO through its Coastal Regions and Small Islands Intersectoral Platform (CSI). Stakeholder involvement played an important role in this study. Meetings with stakeholders were convened in a variety of locations throughout the course of the Project to maximise participation.

This report presents and analyses data collected between 2004 and 2005 in the Surin Islands and Tarutao national marine parks. The report concludes with recommendations for enhanced protected area management and methods to promote natural and cultural conservation. Both project sites were affected by the tragic Indian Ocean tsunami in December 2004. Tarutao National Marine Park suffered only minor damage, while the Surin Islands were more seriously affected. The Moken villages and school on the Surin Islands were completely destroyed. Tourism in both parks declined dramatically following the tsunami, resulting in a significant loss of tourism-related income. Since the tsunami, rapid change has occurred in the Moken community. A new Moken village has been constructed, and several organisations and foundations have shown interest in assisting with community rehabilitation. A challenge in the coming years will be to harmonise the varying goals and visions of these external parties with the needs and aspirations of the Moken people.

The Andaman Pilot Project would like to thank the multi-faceted work of Soimart Rungmanee, Paladej Na Pomberjra, Thanit Boodphetcharat, Steven Usher and Lucy Hargreaves. The project would not have been possible without funding (award number NA03NOS4630229) from the National Oceanic and Atmospheric Administration (NOAA), which was made available under the International Coral Reef Conservation Programme to "promote socio-economic monitoring in coral reef management."

The project team is also grateful to the Department of National Parks, Wildlife and Plant Conservation, the superintendent and staff of the two national parks, district staff, local administration staff, local tour operators, the captain and crew of the fishing boat who facilitated our trips to the islands and the tourists who participated in our survey. Most of all, we wish to thank the members of the Moken and Urak Lawoi communities who provided valuable information and served as inspiration for the project team.

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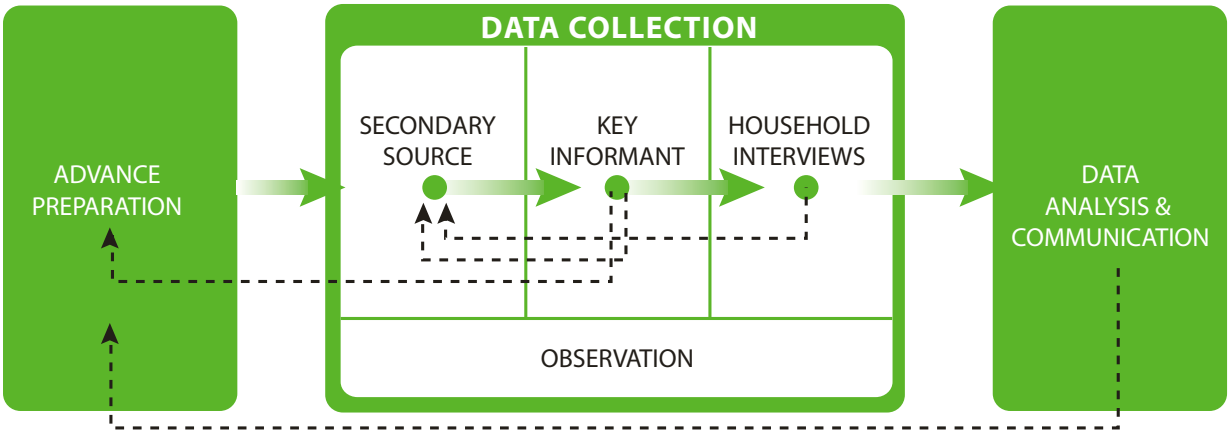
Part I:
Methodology

Guidelines

Data for this study was collected using Socio-economic Monitoring Guidelines for Coastal Managers in Southeast Asia (SocMon SEA) guidelines. These guidelines facilitate regular data collection and monitoring to assist in the management of marine protected areas and in the development of a database to allow temporal and spatial comparisons of indicators. SocMon SEA describes 60 socio-economic aspects that can be developed into indicators. Only indicators relevant to the context of this study were used by the research team. Appendix 1 provides a comprehensive outline of the socio-economic elements measured in this study. All names appearing in italics are Thai language translations unless otherwise stated.

The main methods of data collection in the SocMon SEA process are interviews with key informants, household questionnaires, observation and a review of existing socio-economic data. Figure 1 outlines the SocMon SEA process. Advance preparation is an essential first step, followed by the collection of socio-economic data from existing written or documentary sources. These steps are followed by

Figure 1: The SocMon SEA Process



Source: Bunce and Pomeroy (2003, p. 8)

Data gathering in the field

interviews with key informants who are in a position to give accurate information and provide a deeper understanding about demographic or socio-economic conditions. These interviews are followed by household questionnaire-based interviews that collect information through close-ended questions designed to suit the local context. This stage is a quantitative approach that requires a sampling method.

Stakeholder participation is a crucial component of the SocMon process. Data analysis should be a co-operative venture among stakeholders, and meetings must be convened to discuss the findings and to ensure that results are disseminated to all parties concerned. Knowledge-sharing and joint data analysis between the research team, marine biologists, relevant park officers/staff and representatives of indigenous communities helps to validate final research outcomes. Communication is also very important for the improvement of protected area management, and meaningful exchanges between the community and researchers are critical. To institutionalise the methods outlined above, it is strongly recommended that a socio-economic monitoring programme be included in the Master Plans of the Surin Islands and Tarutao national marine parks. Participatory ecological monitoring should also be integrated into the same

programme. Although monitoring should be carried out with the participation of the local community every two to three years, the issues and indicators that are monitored should be reviewed every five to ten years to ensure that all necessary information is gathered.

Although several natural and social science research studies have been conducted in the Surin Islands and Tarutao national marine parks, these efforts have not been co-ordinated to date. There have been no serious efforts to undertake interdisciplinary studies of these protected areas, since socio-economic data is often regarded as irrelevant in national park management plans. Although national parks usually have their own research plans, these are often not conducted due to a lack of personnel and skilled researchers in the relevant fields. Data gathered from regular research and monitoring is not only useful for management planning, it may also help to generate information to use in other marine parks. It is, therefore, essential for national parks to strengthen the capacity of their staff to co-ordinate research and integrate the results into management plans and policies. Parks should also seek to co-operate and collaborate with research institutes or universities to aid in this process.

Surin Islands National Marine Park

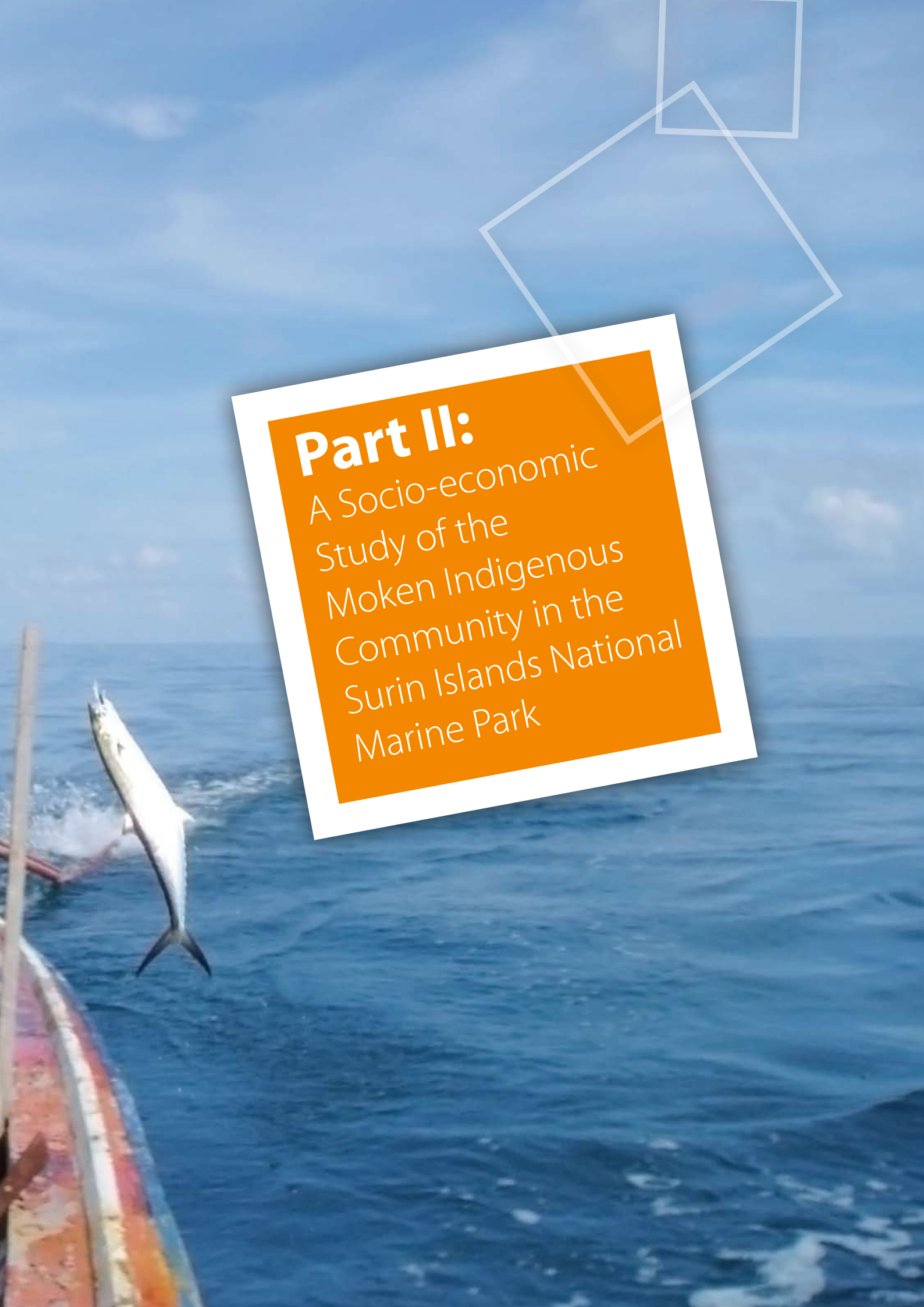
Data was collected in the Surin Islands National Marine Park over several periods: March to May 2003, November 2003 to March 2004 and December 2004. Data collection towards the end of the project period was problematic due to the impact of the Indian Ocean tsunami in December 2004. After the tsunami, the Surin Islands Moken relocated to the Thai mainland for two weeks prior to returning to the islands to build a new village. The National Marine Park was closed to visitors throughout January 2005.

Using SocMon SEA guidelines, the project team devised locally relevant methods to collect socio-economic data. Data was collected primarily through interviews and questionnaires. Questionnaires were completed by all 46 Moken households, yielding basic information about 184 Moken individuals, including their age, sex, place of birth, language ability, special skills and income. Data gathered at the household level included information on marine livelihood, consumption practices, perception of the park's resource management issues and aspirations for the future. Visitors to the National Marine Park were also interviewed using a questionnaire. The project team interviewed 115 Thai tourists and 20 non-Thai tourists. Data was collected on basic biographic details, perceptions of the overall natural condition of the Surin Islands, perceptions of the Moken community and understanding of the National Marine Park and Fisheries regulations.

Tarutao National Marine Park

In addition to using existing research on the Urak Lawoi of the Adang Archipelago, the research team applied the SocMon SEA method to collect basic socio-economic data. Questionnaires and interviews with key informants were conducted between April 2004 and February 2005. Additional in-depth interviews with informants were included in the study to investigate certain issues in greater depth, including previous ways of life, the nature of coastal management problems and tourism development. Among the 27 respondents, 21 were male and six were female. Five were official leaders (including the village head and his assistants and sub-district administrative officers), seven were government officials (including Tarutao Park officials, fishery officials, development officers, teachers and public health officers), while the remainder were villagers who had knowledge in different fields. The youngest key informant was 24 years old and the eldest was 72 years old. Fifteen Urak Lawoi residents of Lipe Island were also surveyed.

Household surveys were conducted between April 2004 and February 2005. This survey employed a modified SocMon SEA questionnaire. There were five sections in the questionnaire: household demographics, including occupation and income; marine and coastal activities; perceptions and attitudes related to coastal and marine resource management; and consumer behaviour. The survey was administered to 53 households with a total of 232 inhabitants. Tourist surveys were administered between December 2004 and May 2005. A total of 360 tourists, comprising 117 Thais and 243 non-Thais, participated in the study.



Part II:
A Socio-economic Study of the Moken Indigenous Community in the Surin Islands National Marine Park

1.0 Natural and Cultural History of the Surin Islands

1.1 Physical and Environmental Settings

The Surin Islands are located in the Andaman Sea, approximately 60 kilometres off the southwest coast of Thailand. Administratively, the Surin Islands are part of Khuraburi District in Phang-nga Province, which lies approximately 720 kilometres southwest of Bangkok. The Surin Islands consist of five islands that cover an area of 135 square kilometres, of which only 33 square kilometres is land. The main islands are North Surin Island (Surin Nua) and South Surin Island (Surin Tai); the smaller islands are Stork (*Phai* or *Fai Waeb*) Island, Torinla (*Rab*) Island and Pajumba (*Mangkorn*) Island. The islands are composed primarily of granite rock and there is limited flat land.

The local climate is influenced by two different monsoon seasons. The weather is hot and dry during the northeast monsoon (from November to April) and rainy and stormy during the southwest monsoon (from May to October). The average annual precipitation is over 3,000 millimetres and the average humidity is 83 percent.

The islands main natural features are coral reefs and forests. The coral reef surrounding the Surin Islands is reported to be the largest and widest in Thailand, spanning a distance of nearly 1,200 metres from the beach to the edge of the coral reef. A survey conducted in 1993 listed 13 sets of reefs around the five islands in the archipelago and another two sets surrounding underwater rocks (Phongsuwan, 1993). Biodiversity in the coral reefs is high, with another pre-tsunami survey

Lush forest and crystal-clear water of the Surin Islands

Moken women and children

counting 128 species of corals, 205 species of fish and 118 species of other marine organisms (Chulabhorn Research Institute and the Thai Royal Navy, 1995). The El Nino phenomenon and waste discharge are thought to have contributed to the deterioration of area's coral reefs.

Coral Cay Conservation reports that after the tsunami, "the regional average loss in quantity or cover of coral throughout the Surin Island National Marine Park is calculated to be only 8%" (2005, p. 22). However, significant variation is found between locations, and some areas were much more severely damaged.

Tropical rainforest is the other major natural feature on the islands. It accounts for over 90 percent of the forested area. The forested areas are well preserved and play an important role in the Moken's traditional lifestyle.

Due to its high level of biodiversity and astounding natural features, the National World Heritage Committee of Thailand proposed that the Surin Islands National Marine Park, along with two other national marine parks in Thailand, be included on UNESCO's World Heritage List. As of May 2006, these parks were included on Thailand's tentative list, with documentation under preparation to support further consideration by UNESCO.

1.2 The Moken

The Moken, also referred to as *chao lay*, *sea nomads* or *sea gypsies*, are maritime nomadic people who historically travelled to different islands and coastal areas throughout the year according to various factors such as subsistence needs, wind patterns, security concerns or disease. For at least the past 300 years, many coastal regions of South-East Asia have been home to such nomadic groups, including the Moken.

Traditionally, in the dry season, the Moken reside in boats to travel, pursue maritime subsistence activities and trade with *taukay* (middlemen) for rice and other necessities. The Moken are skilled divers and navigators who possess intimate knowledge of the sea. During the southwest monsoon season, when seafaring becomes difficult, the Moken build temporary shelters on beaches in protected bays. Settlements are normally situated on sloped beaches in bays on the eastern side of islands for protection from the winds and waves. The locations also provide increased visibility towards the mainland and are close to areas with access to fresh water. The Surin Islands have been a home and foraging ground for the Moken for centuries, with at least ten historic settlement sites known to current Moken elders.

Although the Moken frequented the Surin Islands long before the establishment of the National Marine Park, there is little acknowledgement of this fact by the Park or other government authorities. The National Marine Park Interpretive Centre provides only a small amount of information about the Moken and their livelihood. There is no information presented to visitors regarding their historical presence on the islands or of their indigenous knowledge, which is highly relevant to present-day natural resource management techniques.

A long-tailed boat taking visitors snorkelling

1.3 The Surin Islands National Marine Park

In December 1971, the Surin Islands were designated as a reserved forest by the Royal Forestry Department. Proposed uses of the islands during the 1970s included a wildlife sanctuary and a potential campsite for refugees from the Indochina conflict. These proposals did not reach fruition and, after a Royal Forestry Department survey of the terrestrial and marine environment, the Surin Islands were declared Thailand's twenty-ninth national marine park in 1982. Park infrastructure in the Surin Islands was developed in five phases, which are detailed below.

Pre-tsunami village at Small Bon Bay

Phase One (1981 – 1985)

In the first phase, Royal Forestry Department staff conducted surveys of the islands, built basic facilities and forged relations with the Moken. Moken elders recall that the government staff treated the Moken well and sometimes provided them with food. At this time, there was a small Moken settlement on the site where the National Park office is presently located. The Moken suggested the site to the Park staff as a suitable one for building offices and facilities and voluntarily moved their settlement from this place, *Buhun Aeboom Bu-nga*, to give way to park infrastructure. The Moken also provided Forestry Department staff with information regarding fresh water sources and the different natural sites of the islands. On April 28, 1985, the Park was officially opened by Dr. Thalerng Thamrongnawasawat, the then-secretary-general of the Ministry of Agriculture and Cooperatives. However, at this time the park remained closed to visitors pending the construction of enhanced facilities.

Phase Two (1986 – 1996)

The focus of Phase Two was tourism development. During this phase, more infrastructure and facilities were built, such as the hill top bungalow used as a royal residence, a visitor centre, a dining hall, guest accommodation, public toilets and showers, the Mai Ngarm Beach nature trail, staff residences and a boat pier. Towards the end of this phase, an average of 25 visitors per day visited the National Park.

Phase Three (1997 – 2001)

During Phase Three, tourist services became more systematised and additional staff accommodation was built. A camping area with public toilets was built at Mai Ngarm Beach. A new nature trail and a self-guided snorkelling trail were also built but later abandoned due to maintenance difficulties. To handle the additional waste created by the increasing number of visitors, the Park implemented a voluntary waste separation programme. In addition, sea turtle nursery ponds were built and many turtles were raised and released into the sea. These ponds were demolished during the fourth phase of development. In co-operation with Khuraburi Hospital on the mainland, Park staff established a primary care unit on the Surin Islands that provided medical services for tourists and Moken during the dry season.

Phase Four (2001 – 2004)

Rapid infrastructure development occurred during this period. Semi-detached bungalows (*sinsamut*), a new visitor centre, a souvenir corner and an alcohol outlet were some of the developments. Waste management became more organised since the Park received a new landing craft, which enabled the loading, transport and unloading of

garbage and other items to and from the mainland. On Mai Ngarm Beach, the camping area was expanded and a new, smaller camping area was added.

Phase Five (2005 – present)

The Indian Ocean tsunami of 2004 devastated much of the park infrastructure. The dining hall, visitor centre and interpretive centre (both old and new) were completely destroyed. The structures at Mai Ngarm Beach were slightly damaged and the camping area was re-opened to visitors in February 2005. The number of visitors to the islands decreased dramatically after the tsunami, and in mid-2006 remained lower than at the time prior to the tsunami. The Department of National Parks, Wildlife and Plant Conservation granted a small budget to support the renovation and rebuilding of park structures. Due to the limited amount of funding provided, the local Park Authority has decided to construct the new buildings in a simple and natural style.

1.4 The Fisheries Conservation Unit

The Fisheries Conservation Unit (FCU) is administered by the Andaman Sea Fisheries Protection and Suppression Centre in Krabi Province, which reports to the Fisheries Administration Office, Department of Fisheries, within the Ministry of Agriculture and Cooperatives. The main duty of the FCU is to patrol, suppress and arrest fishermen and fishing boats that violate the Fisheries Act of 1947.

Most FCU buildings on the Surin Islands were constructed around 1992 and include offices, bungalows, staff residences and storage facilities. Between 1999 and 2003, an open dining hall and a gazebo were also built. None of the FCU staff are government officers. Due to a low budget and limited number of staff, marine patrols to enforce regulations are infrequent.

Suraswadi school situated in the Fisheries Unit, pre-tsunami

The single-room Suraswadi School was set up in 1995 with a donation by the then-director-general of the Fisheries Department, Mr Suraswadi. Located at the FCU, the school taught Moken children basic Thai language skills, arithmetic, physical education and other subjects. The teachers were volunteer and lunch was provided for the children. In 1997, a curriculum designed by local teachers especially for Moken children was drafted and tested. The curriculum was approved and the Suraswadi School became administered by the Khuraburi District Education Office, under the supervision of the Principal of Pak Jok School on Phra Thong Island. The District Education Office provided daily milk supplements, and trawler skippers and tourists frequently donated rice, notebooks, uniforms and sports equipment to the school. School activities were terminated in September 2004 due to budget cuts by the Ministry of Education. Afterward, the Indian Ocean tsunami destroyed all FCU structures, including the school building.

In April 2005, a new school was built on Large Ban Bay by the Non-formal Education Office under the Ministry of Education with funds from the Princess Sirindhorn Tsunami Fund.

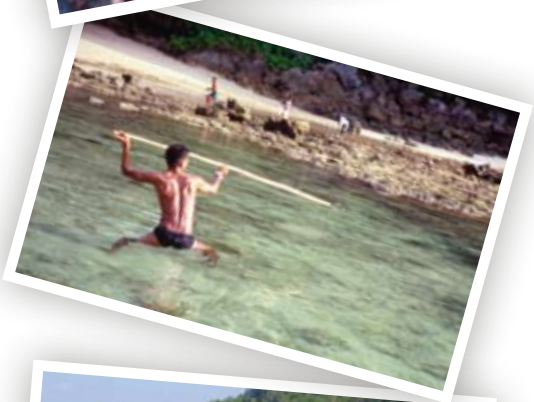
2.0 Socio-economic Data[1]

2.1 Population, Mobility and Settlement Population

Prior to the 2004 Indian Ocean tsunami, there were two Moken communities on the Surin Islands. One community, consisting of 16 households, was located at Sai-En Bay on North Surin Island. The other community, consisting of 30 households, was located at Small Bon Bay on South Surin Island. The Moken population on the Surin Islands fluctuated seasonally and annually. Some individuals and families migrated between the Surin Islands and other islands in Myanmar waters and between the two communities within the Surin Islands.

During 2004, there were 184 Moken living on the Surin Islands. Of these, 77 were male and 107 were female. The uneven gender balance is largely due to the fact that Moken men have a shorter life span than Moken women, due in part to the greater risks Moken men entail in pursuing marine endeavours and also to the increasing prevalence of substance abuse and addiction amongst Moken men. About half of the population are 18 years old or younger, and children under the age of ten constitute about one-third of the population. The rising population, quantified in Appendix 2, may be expected to reach an equilibrium and or decline since birth control is becoming increasingly available. The average size of Moken households on the Surin Islands as of May 2005 was 4.2 individuals.

Prior to March 2006, only two percent of the Surin Islands Moken community had Thai citizenship and the associated national identity card. The rest were stateless and, consequently, did not receive any protection under Thai law. Following the Indian Ocean tsunami, national and international media increased their coverage of the Surin Moken and the hardships they face, including their lack of citizenship. Consequently, the Department of Local Administration sent an official team to collect individual information from members of the Surin Moken community and, as of March 2006, 32 Moken had received an identity card.



Moken subsistence activities

Mobility

As a historically nomadic people, there are at least ten sites on the North and South Surin Islands where the Moken used to settle during the monsoon season. This does not include the beaches and bays where they anchored their boats or set up their temporary shelters. The Surin Islands Moken are now relatively more sedentary, with 75 of the Moken surveyed having lived on the islands for over 11 years. Several reasons account for this decreasingly nomadic lifestyle. First, travel has become increasingly difficult, with voyages around the Mergui Archipelago being particularly dangerous due to ethnic conflict and frequent patrols by Myanmar naval vessels. Second, coastal development and increasing private ownership of land have made it more difficult for the Moken to find settlement areas. Third, National Park restrictions on the harvesting of wood means that most Moken now purchase pre-fabricated motorised long-tail boats, rather than building traditional sail boats made of light salacca wood. The high

1 This data was collected prior to the Indian Ocean tsunami, which directly impacted the Surin Islands and the Moken community.

maintenance and repair costs associated with long-tail boat engines have increased the costs of travel. Enhanced security and increased employment opportunities offered by the Park have also made the Moken's nomadic lifestyle less necessary.

This decreasing nomadic lifestyle is partially reflected in the Moken's declining multilingual abilities. Travelling extensively to different islands and coastal areas made it necessary for the Moken to communicate and interact with a variety of different people speaking various languages. Consequently, the older generations of Moken could speak several languages – Burmese (ten percent of the Surin Moken can understand or speak Burmese), Bahasa Malay (eight percent) and Urak Lawoi (three percent). Nowadays, all Surin Moken can speak Moken, which is their mother tongue, whilst a significant number (64 percent) also speak Thai to an intermediate standard.

Settlement and Infrastructure

In Moken villages, huts are made almost entirely from natural materials. The Surin Islands Park Authority discourages the use of materials from outside the islands, such as corrugated iron sheets and plastic sheets. The pre-tsunami huts were built with wood, and bamboo with thatched roofs. Some huts had mixed bamboo and plank floors. About half of the households had car batteries, most of which were used to power small black-and-white television sets. Forty-three percent of households had such televisions in their huts, 37 percent had small radios and 26 percent had stereo sets.

A village at Large Bon Bay, post-tsunami

Hand-drawn plan of the pre-tsunami village community at Small Bon Bay

© Paladej Na Pombejra

Hand-drawn plan of the post-tsunami village at Large Bon Bay

© Narumon Arunotai

The pre-tsunami Moken villages on the Surin Islands did not have piped water, toilets, or the means to generate electricity. Both villages had small streams running from the forest, so weirs had been constructed and short pipes channelled some of the water to the villages. The Moken used the resulting small water pools as bathing, washing and social areas. The beach on both sides of the villages served as a toilet area, which was cleaned by diurnal tides as efficiently as a flush system.

The tsunami swept away the two villages, three Moken dugout canoes, six long-tailed boats, over 20 rowboats and many of the Moken's personal belongings. With no homes or boats, the Surin Islands Moken took refuge on the mainland. Within two weeks, most had moved back to the islands and local Thai volunteers helped them to build huts in a new village located at Large Bon Bay. Because the hut materials were donated and transported to the islands from the mainland, most of the materials were not the traditional ones that the Moken would have used. For example, particleboard was used to build floors and create partitions, which led to poor air circulation within the huts. As these materials deteriorate, the Moken will likely rebuild and repair their huts with natural materials found on the islands.

The post-tsunami village consists of 55 households, the largest ever in the Moken's history on the Surin Islands. This is due to the consolidation of the two villages and the arrival of several Moken families from St. Matthews Island in Myanmar, which was also affected by the tsunami. After the tsunami, volunteers built a large pavilion for the Moken, along with nine public restrooms, a school shack and a teacher's hut. The Moken obtained vegetable seeds from the mainland and most households now tend their own vegetable plots of pumpkin, melon, banana and chilli pepper. Additional donations to the community included nine large boats with engines and over 15 small boats.

2.2 Indigenous Knowledge

The Moken are very knowledgeable about their surrounding environment and natural resources. Nomadic lifestyles have made the Moken excellent navigators who have detailed knowledge of the winds, tides and lunar cycles. The Moken are particularly adept at hunting marine animals, including sea turtles, sea urchins, fish and giant clams. To aid hunting, a variety of different tools are employed, varying from hand lines to purpose-built spears, axes and hammers. The Moken are also highly knowledgeable about the terrestrial environment. They use at least 159 species of plants for food and medicine, building materials and fuel. The Moken's knowledge of the marine environment helped them recognise the receding tide of December 26, 2004 as a warning sign of the impending tsunami. When the seawater started to recede, the Moken knew that a *la-boon* (tsunami) was coming, so they took refuge on high ground (Elias and Soimart, 2005).

Walter White, a missionary who travelled to several islands inhabited by the Moken nearly one hundred years ago, remarked on the Moken's significant knowledge of the environment,

…that they [the Moken] should be careful to distinguish the numerous small shellfish and the tiny denizens of the sea is noteworthy. It means that they have an extensive nomenclature; and it is accompanied by intimate knowledge of the species. A conchologist would be able to have a delightful and profitable time were he to tour the Archipelago in company with such a Mawken as was Nbai [White's informant and assistant]. Scientists might, with advantage, make use of such people as these and unless their services are secured soon they may ere long be unobtainable (White 1922:298).

In addition to environmental knowledge, the SocMon SEA questionnaire identified other types of indigenous knowledge and skills. Spiritual and medicinal knowledge, oral history, musical skills and craft-making are common in the Moken communities. Many of the medicinal practices of the Moken rely on the use of surrounding natural resources. Art and music are also important in the cultural lives of the Moken. Traditional songs and instruments allow the Moken to share experiences with one another and with non-Moken people. Now, however, typical Moken musical instruments such as the flat drum, fiddle and gong are rarely made, and the use of songs is also declining. Storytelling is another popular Moken activity, and legends that describe the origin of worldly items and phenomena are common. Adult men retain the knowledge of traditional boat making, while women are able to weave pandanus mats, baskets and boxes. Retaining these skills and knowledge is essential if the Moken are to maintain their self-sufficiency and historical roots. To encourage knowledge retention and inter-generational learning among the Moken, it is important that the curriculum provided in Moken schools be considerate of the local language and culture.

2.3 Education and Health

Education

Moken children did not have access to a formal education system until 1995, when volunteer teachers from the FCU began to teach Moken children at Suraswadi School, as noted above. Prior to 1995, children learned from other community members through informal means. Similarly to other indigenous populations, this non-formal learning was based on observation, memorisation, experience, exploration and practice. Since the Moken language exists only in spoken form and does not have a written script, there is no means of transferring information via text. This presents a limitation from the perspective of formal education because it means that students learn through observation and experience, rather than through reading and writing. However, the strengths of experiential learning are many: there is no need for external equipment or textbooks; it fosters equality amongst students; and, since it does not rely on external materials, the opportunity to learn cannot be removed.

While the Suraswadi School was in operation between 1995 and 2004, 34 percent of the Surin Islands people, which accounts for the majority of the children, received a formal school education. None received an education higher than Grade 5. After the tsunami, the ChaiPattana Foundation, founded in 1988 to promote social and economic welfare activities, in co-operation with the Khuraburi Non-Formal Education Office, the Surin Islands National Marine Park and the Khuraburi District Office, set up a school at the new Moken village. Two teachers were hired to primarily teach basic literacy. Since its establishment, Moken parents have been willing to send their children to the school.

Since children are not provided with school lunches, however, they are frequently distracted by hunger.

Ultimately, children who complete lower elementary education on the islands and want to continue their studies will have to move to the mainland. This is a socially and psychologically difficult prospect for many Moken children since they often feel isolated and lonely away from their communities. Scholarships to support a group of students to continue their education together could make this transition easier. In addition, participation in mainland school camps would enable Moken children to gradually become more comfortable interacting with Thai children and society.

It is essential that the curriculum provided to Moken children creates a connection between traditional knowledge and state education goals. The education system should impart not only 'modern' skills and knowledge, but also instill a sense of cultural identity and pride. Education should aim to enhance the quality of life, while simultaneously fulfilling the expectations of the indigenous community.

A cool paste prepared from tree bark to reduce children's fever

Health

Traditionally, local healers were the primary healthcare providers amongst the Moken and used traditional medicines derived from natural resources to treat medical symptoms. Consequently, many adult and elderly Moken are not familiar with modern medical services and are reluctant to seek medical help at the mainland hospital. Due to language barriers and the high costs of staying on the mainland for prolonged periods, most Moken prefer to visit the Surin Islands National Marine Park local clinic to address their health concerns.

The Moken suffer from a variety of common ailments. Amongst the elderly, predominant problems include stomach ulcers, knee-ache and tooth decay from chewing betel nuts. Children commonly suffer from stomach worms and asthma. Substance addiction is an increasingly common problem, and has been responsible for an increased mortality rate among Moken men. Malaria, tuberculosis and HIV/AIDS are also existent among the Moken. Health officers are stationed on the islands during the tourist season to assist both tourists and Moken. The monsoon season poses an obstacle for the Moken because travel to the mainland is difficult and there are no health officers on the islands during that time.

2.4 Livelihood, Income and Consumption

Historically, the Moken's livelihood consisted of a combination of subsistence-based foraging and trading with *taukay* (see p. 36 for more information). Most of the trading revolved around marine products such as pearls, seashells, turtle shells, edible bird's nests and dried sea cucumbers. Since they were generally unaware of the true market value of these items, the Moken were often inadequately compensated by the *taukay*.

1. Preparing pandanus strips for handicrafts
2. Model boats for visitor souvenirs
3. Various handicrafts are made to generate income
4. A traditional musical instrument

In the Surin Islands, the impact of tourism development and over-harvesting of marine resources became apparent in the 1990s. When the Surin Islands National Marine Park opened in the 1980s, the Moken were permitted to sell seashells to tourists. This practice continued until 1996, when it was banned by the Park Authority. To compensate the Moken for the loss of this income source, the Park Authority set up a Moken Fund, which was used to hire some Moken to work in the park as construction workers, boatmen, garbage collectors and porters. The use of a special fund was required because Moken cannot be hired using the government's budget if they do not have a national identity card. Compensation is around 100 baht per day (approximately US $2.73) and includes two or three meals provided in the park's staff kitchen. Some Moken also earn income during the tourist season by selling handmade crafts, such as pandanus boxes, baskets and mats to visitors. Boxes and baskets sell for 20-100 baht (under US $2.73); mats sell for 100-250 baht (under US $6.83); and model boats sell for between 100-3,000 baht (under US $81.95).[2]

A tourist diving boat

Due to a greater availability and reliance on consumer goods, the Moken increasingly require a greater cash income to meet their needs. Average household income during the tourist season is much higher than during the rainy season. Over 70 percent of households reported their income to be sufficient, and 43 percent of these respondents also reported some form of non-cash savings such as foodstuffs and jewelry. About 22 percent of households said that their income was insufficient to meet their needs. Accumulating financial capital is not a common practice amongst the Moken. Many Moken buy their necessities on credit at the Park store, which is more expensive than buying items wholesale through community purchases. This has caused a cycle of dependency in which goods are purchased on credit from the Park Authority and the debt is generally paid off through income earned as a Park employee.

Surin Islands Moken are further discouraged from generating cash savings because it is impossible to open a bank account without a national identity card. Moreover, banking presents an inconvenience due to the long distance between the islands and the mainland. Consequently, non-cash savings are popular in the form of gold jewelry and other items of value.

Traditionally, the Moken hunted, gathered and traded in order to satisfy their basic needs. In recent years, the Moken's consumption patterns have changed as they have become increasingly dependent on pre-fabricated goods and food from the National Marine Park. The SocMon SEA household questionnaire found that Moken households are spending significant amounts of monthly income on instant coffee powder, tobacco and alcohol. The Moken obtain around 50-70 percent of their food from the Park during the dry, tourist season. However, they are generally more self-reliant when the Park is closed to visitors during the monsoon season when most of the fresh food for meals is derived from the sea or the forest. Still, 60 percent of households stated that there are days during the monsoon season when only rice is consumed. Employment is scarce during the monsoon season. The only income is derived from fishing and selling the catch on the mainland.

2 Baht-US dollar price equivalents throughout this document were calculated in November 2006.

2.5 Attitude and Compliance to Conservation Regulations

Information sign within the Park

Collecting information about the Moken's adherence to the Surin Islands National Marine Park rules and regulations posed a challenge. Since the Moken's resource use is not always in compliance with park regulations, trust between the data collector and the Moken was essential in generating honest responses to questionnaires. Collecting data on non-compliance is important since understanding the motivations behind non-compliant behaviour provides an opportunity to enhance park management practices to address these underlying motivations.

The Moken's close interaction with their surrounding environment enables them to closely monitor and observe the subtle natural changes on the islands. The Moken have a general perception that the Surin Islands natural resources are degrading. Beach erosion and a decline in forest materials (for making huts, roofs and pandanus mats) are the most serious problems, according to the Moken. The Moken view their resource extraction as sustainable since, in their opinion, the resources replenish themselves during the rainy season. Despite their overall perception that natural resources are being degraded, the Moken believe that the health of sea cucumber populations, mangrove forests and coral reefs are generally better than they used to be. Appendix 3 provides an overview of the Moken's perception of natural resource health.

In addition to surveying perceptions of the quality of natural resources, the SocMon SEA survey measured environmental impact perceptions. Waste disposal is considered to have a significant environmental impact by 61 percent of Moken households. Waste packaging associated with consumer goods is becoming problematic, and small dump sites have been created at the back of the village. This garbage is burned several times during the week. These practices are insufficient to adequately deal with the large quantities of waste generated. Other activities that are considered to have negative impacts include foraging for tradable goods, boat anchoring and shellfish collecting.

The household questionnaires revealed that about half of the Moken households surveyed were not well-informed about the mandates of the National Park Authority and the Fisheries Conservation Unit. Only one-fifth of the Moken households knew that the mandates related to conservation, while more than a quarter believed that the main mission of the Park Authority was to provide tourist services. Despite this confusion regarding the Park's role, approximately 70 percent of the households reported being aware of the restrictions placed on harvesting certain species. About 87 percent of households reported that they follow the National Park's rules and regulations to a certain degree.

2.6 Future Aspirations

The way the Moken perceive their future is of fundamental relevance to the management of the Surin Islands National Park. The data regarding the future aspirations of the Moken was collected prior to the 2004 tsunami and, since then, the Moken have gained greater exposure both to the outside world and to contacts from several organisations and foundations, factors that might influence their goals for the future. The survey indicates that over 60 percent of Moken households would like to continue the lifestyle and livelihood that they had prior to the tsunami, while 15 percent would like to see more development and tourism.

Nearly 85 percent of Moken households indicated that they want their children and grandchildren to continue living on the Surin Islands. Almost half want their children to continue the traditional marine livelihood, whereas one-fifth indicated a preference for their children to work at the Park. Approximately one-third of the households said that a higher level of education might facilitate work with the Park and another one-third believed that higher education would increase opportunities to work on the mainland. Due to their previously isolated existence, many Moken are unaware of the full range of occupational options available to them. Community development activities to broaden awareness would enable the Moken to make more informed choices about their future.

Some Moken men work as park garbage collectors

3.0 Coastal Resource Management

3.1 Indigenous Ecological Knowledge

Although coastal resource management is often thought of as a government responsibility, it is important to recognise that the Moken have responsibly managed the coastal resources of the Surin Islands for centuries. These good management practices are a result of the Moken's nomadic lifestyle and their indigenous knowledge about the surrounding environment. The Moken's use of appropriate technology, such as fishing spears and traditional boats, has had a relatively low impact on the surrounding natural environment since such tools do not facilitate the harvest of large amounts of resources. The nomadic nature of the traditional Moken lifestyle results in the rotating utilisation of forest and marine resources so that no particular resource or area is degraded from continuous use. Recently, this nomadic subsistence-based lifestyle has given way to an increasingly sedentary lifestyle that is more reliant on consumer goods.

Taboos and the concept of common property resources have also contributed to the Moken's responsible management of coastal resources. For example, there is a permanent taboo against harming the Surin Island macaques, since they are considered a spiritual representation of the late shaman. In addition, before harvesting certain species, the Moken make spirit offerings as a show of respect. Such special species include *batang* or shipworm, *ta-em* or sea urchin, *ieak jeejum* or small oyster, plant shoots and coconut (Paladej 2003:114).

Since the Moken's lifestyle has gradually changed, some of these practices are becoming less common. The Moken's traditional knowledge, their conservation practices and their keen observation of changes to the environment and natural resources could become useful for protected area management. It is highly desirable that the utility of such knowledge and practices is recognised and incorporated into national park management plans.

3.2 National Marine Park Policy and Management

The National Marine Park Authority has several key responsibilities. These include the implementation of laws relevant to national parks, such as the National Park Act B.E. 2504[3] (1961) and the Fishery Act B.E. 2537 (1994) (Sethapun 2000:2). The Authority is also responsible for applying the principles of marine management and government policy to promote and develop environmental conservation and rehabilitation guidelines; preventing and protecting natural resources; researching natural resources in national marine parks; and disseminating this information to the public to promote awareness and understanding of the need to protect and conserve natural environments.

The Surin Islands National Marine Park Authority has emphasised the importance of services and development in managing the Surin Islands National Marine Park. Currently, the Park has five government officials, three permanent staff and 77 temporary staff. None of these are Moken, who are instead employed only occasionally for manual labour. Based on observations made during the course of this study,

3 B.E stands for "Buddhist Era" and is the reference date predominantly used in Thailand and other Buddhist nations.

successful management of the Park depends primarily on the role of the superintendent, rather than on the management policy or plan. Since the management plans and park zoning plans have no legal status, the success of such plans rests on the will and effectiveness of the superintendent.

The Surin Islands had a series of three different superintendents during the nine months following the tsunami. The reasons for this quick succession are unclear, although some have speculated that it was a result of influence from the local government and tour operators. This unstable management situation poses a threat to the trust between local stakeholders and the Park's authorities.

Several academics and researchers have studied park management issues in the Surin Islands, and recommendations have already been made for more effective and efficient management practices (Worachananant *et al* 2004: 757-763; Sethapun 2000:11-16; Chettamart *et al* 1998:53-70). This current research focuses only on issues not generally covered by previous researchers. Such issues include the Moken's role in park management and improvement of the cultural element in the Park's interpretation programmes.

Tourist camp site

Tourism Development

Tourist promotion has resulted in a large increase in the annual number of visitors to the Surin Islands National Marine Park. In 2004, 36,166 tourists visited the islands (28,637, or 79.2%, Thai and 7,529, or 20.8%, foreign). Thai tourists generally stay overnight on the islands, while foreign tourists visit on day trips. Following the tsunami, the number of tourists decreased dramatically due to the destruction of buildings and infrastructure, and out of a fear of future tsunamis.

Although some improvements to services and natural resource management have been made to the Park since the late 1990s, further improvements are still needed.[4] To be successful, alterations in park management plans should be undertaken in consultation with park users and other relevant stakeholders. To this end, it is necessary for the Park Authority to acknowledge that wise management requires the participation of these stakeholders.

The development of park infrastructure is only one of the factors expected to draw increasing numbers of tourists to the Surin Islands after the tsunami recovery period. Enhanced accessibility is a contributing factor. The number of shuttle boats, tour boats, dive boats and speedboats have increased significantly in recent years. Speedboats have reduced the length of the one-way trip to the Surin Islands by over two hours, thus making day-trip and one-day snorkelling tours possible. Since the Surin Islands are only accessible by boat, co-ordination with boat and tour operators will enable the Park Authority to better control and manage the number and frequency of tourist visits.

The number of visitors to the Park has created a significant amount of waste, and enhanced waste management efforts are essential to deal with this problem. Some efforts have been made, such as banning styrofoam containers in the Park and the creation of garbage sorting

4 Such improvements include installing mooring buoys for snorkelling boats to prevent coral damage from anchors and establishing a snorkelling boat reservation system to prevent overcrowding.

bins to promote recycling. There is a need for dumping sites on the Surin Islands for organic waste from the park kitchen and from 'wet' garbage bins, in addition to other non-reusable items. These sites must be located on flat ground, which is quite limited on the islands. The beach of Larger Bon Bay and Smaller Bon Bay were previously used as dumping sites for this type of waste, but were abandoned due to complaints over broken glass and foul odours. Due to the limited amount of flat space, competition may arise in the future over whether to use this space for a Moken settlement or as a waste disposal site.

There is a landing craft on the Surin Islands that is used to transport some garbage back to the mainland. The government currently subsidises the operation of this landing craft, but funding is limited and a more sustainable solution is needed. A wiser practice might be to reduce the amount of food and drink containers reaching the islands, thus reducing the amount of waste created.

Visitor Profile and Perceptions about Park Management

From 1993 to 2004, at least nine sets of questionnaires were distributed to visitors in the Surin Islands.[5] There have been no known attempts to co-ordinate these research efforts or to integrate or compare the results.

The results from the questionnaires used in this study indicate that the majority of visitors to the Surin Islands are Thai. Foreign visitors are mostly from European nations. Half of the Thai visitors are from Bangkok and about 13 percent are from the provinces in central Thailand. Eighty-four percent are first-time visitors to the Surin Islands and 91 percent report a desire to return to the islands. Visitors from the southern region of Thailand constitute about 8 percent of the total visitors. Visitors tend to be well educated, with 69 percent having completed a university degree and 17 percent reporting some post-graduate education.

Of the Thai visitors who had visited the Surin Islands previously, the majority reported that the increase in visitors and infrastructure development were the major changes on the islands. Thai visitors stated that the major threats to the islands are the visitors' lack of environmental awareness, the increasing number of visitors and poor waste management. Visitors suggested that the best methods to solve these problems were to build awareness and create understanding about environmental conservation, limit the number of visitors and more vigorously enforce rules and regulations. Sixty-three percent of visitors believe that the primary role of the Park Authority is to protect and conserve marine resources, with educating visitors about the environment and providing visitor services as secondary roles.

Of the tourists who visit the Surin Islands Moken village, most spend between 15 and 30 minutes in the community, taking pictures and

5 These surveys include: Hinshiranan from the University of Hawaii, 1996 (conducted in 1993, 300 sets distributed and 203 returned); Charnwichai from James Cook University, 1994; Surin Islands National Park Authority, 1998 (120 sets); Wipada Pewsawad from Kasetsart University, Yuwadee Boonmeerod from Kasetsart University, 2002 (300 sets); Thamrongnawasawad et al. from Kasetsart University, 2003; the Andaman Pilot Project from Chulalongkorn University, 2004 (115 sets); Suchai Worachananant from the University of Queensland, 2004 (conducted by Park Staff, 200 sets distributed and 128 returned); and Sorasak Boonpradab from Chulalongkorn University, 2004.

browsing through wooden and pandanus handicrafts. The tourists rarely have a chance during the visit to learn about the Moken's livelihood and culture. In 2002, the Andaman Pilot Project built a small interpretive centre at Small Bon Village to inform tourists about the Moken. This centre was very popular, but was destroyed by the 2004 tsunami.

Eighty-six percent of Thai visitors reported some knowledge of the Moken before visiting the islands, while just over half of foreign visitors reported similar knowledge. Thai visitors had learned about the Moken from guidebooks, the internet and television, whereas most of the foreign visitors had gained their knowledge from the internet. About 70 percent of the Thai visitors and 45 percent of the foreign visitors had a chance to talk to or interact with the Moken during their visit. Twenty-three percent of Thai visitors and ten percent of foreign visitors bought Moken handicrafts during their visit. The main problems faced by the Moken, from the perspective of visitors, are socio-cultural change, lack of support from agencies or offices and loss of space for their livelihood and nomadic life. About 60 percent of respondents felt that tourism results in the loss of community peacefulness and privacy.

The National Park and the Moken

According to the National Park Act of 1961, activities within Park boundaries have to be limited and controlled. In theory, the areas declared as part of a national park should be free of ownership or control, but in practice the land used by local people to sustain themselves has often been declared as national park land. This type of situation limits and disrupts the livelihoods of the original inhabitants, and creates a problem for park staff who work in the areas. The lack of recognition of the economic value of the fisheries and traditional harvesting activities for local people has led to conflict and intense opposition to park management in the Surin Islands and in other similar national marine parks (Chettamart *et al* 1998:57).

Although there is no formal or written agreement between the Park Authority and the Moken, it is well understood that the Moken who frequented the islands were dependent on the marine and terrestrial resources long before the Park was established. Since their subsistence practices do very little to harm the environment, the Moken have been accepted as part of the island's identity and have been permitted to continue their livelihood.

Since the primary responsibility of the park staff is to protect the environment and serve island visitors, there has been little budgetary support from the Thai Government[6] for work with indigenous people. For example, the Surin Islands Master Plan for 2000-2005 was written by the then Department of Royal Forestry, and it barely touched upon the needs of the Moken community. The Plan provided some basic information about the Moken in a chapter on tourist sites in the Surin Islands National Marine Park. However, no mention was made of the Moken's historic relationship with the islands in the chapter on "The History of Land Use on the Surin Islands Prior to the National Park Establishment."

6 Since October 2002, all of the National Parks in Thailand have been administered by the Department of Natural Parks, Wildlife and Plant Conservation (Ministry of Natural Resources and Environment), replacing the role of the Department of Royal Forestry (Ministry of Agriculture and Co-operatives).

Initiative for tsunami recovery

Although the Department's policy and planning system does not duly recognise the Moken or aim to seriously and continuously support their physical livelihood and cultural well-being, the Park's staff have struck a compromise between allowing the Moken to continue their livelihood on the islands and enforcing park rules and regulations. What is crucially needed by the Moken community is an official Departmental policy and plan that affirms the rights of the indigenous community in the Surin Islands National Marine Park and makes commitments to provide serious, continued support to the Moken community through capacity-building and occupational opportunities.

After the tsunami, several agencies, organisations and foundations came to the assistance of the Moken. For example, the Chaipattana Foundation and the Khuraburi Non-formal Education Centre funded the hiring of teachers for Moken children, while the Khuraburi Public Health Office and Adventist Development and Relief Agency International (ADRA) provided assistance with health care and medicine. Others, such as the North Andaman Tsunami Relief Organisation and Raks Thai provided necessary supplies and teaching materials. Since several organisations are focusing their tsunami relief efforts on the Moken of the Surin Islands, it is essential that these organisations and Moken community representatives decide on a development direction for the community. Aid efforts must be coordinated to this end. Since the work of development and relief organisations must comply with the Park's regulations, they should be included as stakeholders in park management planning and implementation.

3.3 Fisheries Conservation Unit Policy and Management

The Fisheries Conservation Unit is a branch unit of the larger Fisheries Office in Krabi. The Office aims to manage fisheries through public relations and education, rather than through enforcement of regulations and arrest. Local administrative offices and organisations are encouraged to participate in fisheries management. The strategic plan involves setting up a fishery zoning system that prioritises the management of zones as follows:

- Restriction Zone: an area that supports spawning and nurseries for young sea creatures. The area is managed by strong restrictive rules and regulations.
- Controlled Zone: an area with fewer restrictions than a Restriction Zone, such as islands with coral reefs or sea grass beds.
- Normal Zone: an area that does not have the characteristics of a Restricted or Controlled Zone. Fisheries staff patrol the areas in this zone only occasionally.

Marine produce

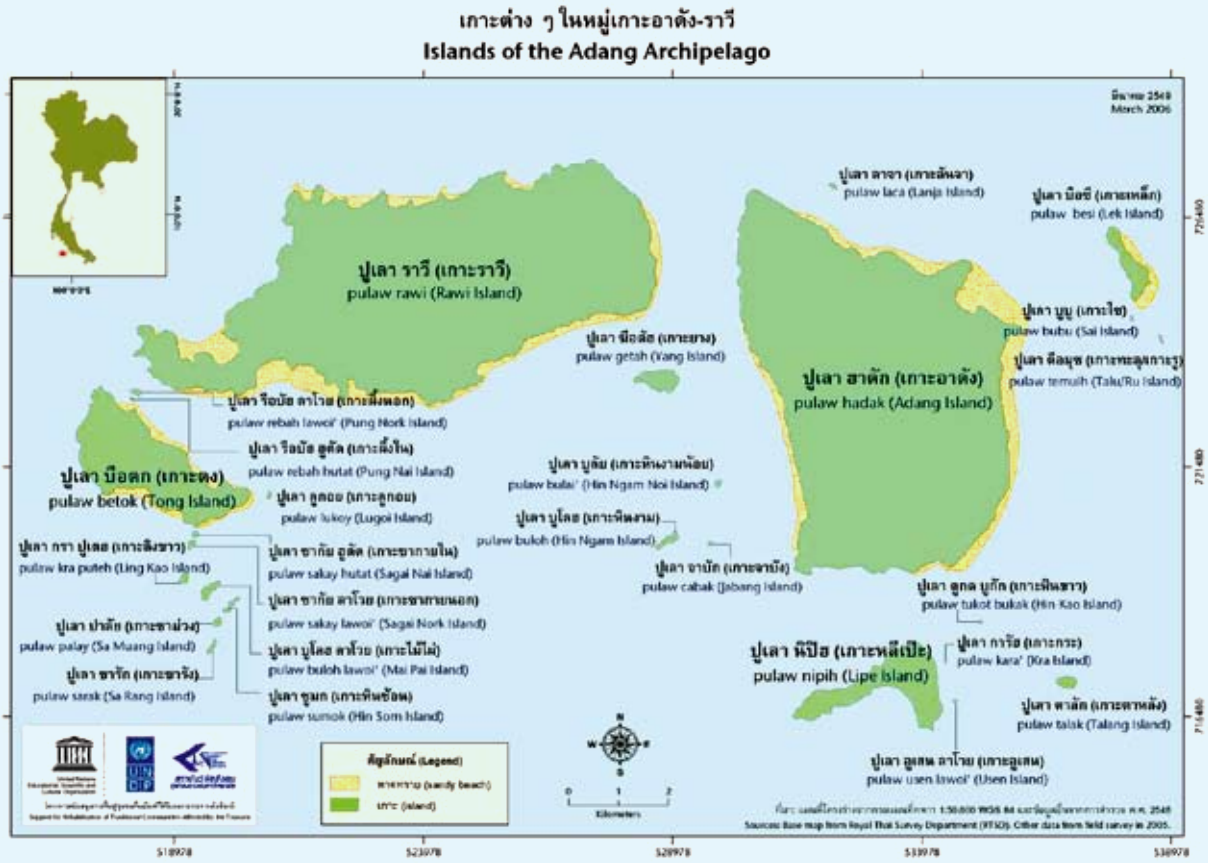
The Surin Islands National Park Authority and the Fisheries Conservation Unit have overlapping roles. Although the National Park Act does not specifically reference marine resources, National Parks frequently include marine areas. The Surin Islands National Park Authority and the FCU should tighten their collaboration since joint management would serve to complement, rather than compete with, the work of each. The development and role of the FCU on the Surin Islands was presented earlier in this report. FCU staff generally have close relations with the Moken, especially when the Moken build their village right next to the station (from 1994 to 2004). However, a lack of funds to support patrols during the rainy season has made the FCU staff rather inactive, and some have resorted to fishing for consumption and for commercial sales. This practice has set a poor example for the Moken.

4.0 Summary

Part II has detailed, for the first time, a comprehensive socio-economic study of the Surin Islands National Marine Park. The relationship the Moken have with the environment has increasingly moved away from a subsistence utilisation of natural resources to a more market-oriented association. Consequential increased pressures on resources need to be addressed by new management approaches that better incorporate the local participation of Moken communities. The findings of a second socio-economic study presented in Part III assert that these themes are analogous to issues faced by the Urak Lawoi indigenous community of Tarutao National Marine Park.

Fishermen casting nets

Part III:
A Socio-economic Study of the Urak Lawoi Indigenous Community in Tarutao National Marine Park



Islands of the Adang Archipelago with Urak Lawoi and English names

1.0 Background of the Adang Archipelago and Urak Lawoi

1.1 Physical and Environmental Settings

The Adang Archipelago is located in the southern part of the Andaman Sea, off the southwest coast of Thailand. It is approximately 70 kilometres southwest of Pak Bara Harbor in the Satun Province of Thailand, 973 kilometres south of Bangkok and 50 kilometres west of Langkawi in neighbouring Malaysia. The Adang Archipelago covers a land and sea area of over 310 square kilometres and consists of two larger islands (Koh Adang and Koh Rawi), three moderate-sized islands (Koh Tong, Koh Lipe and Koh Bitsi), as well as some twenty smaller islands.

The Archipelago is affected by the same northeast and southwest monsoons as the Surin Islands, with the monsoon season lasting from May through October and the dry season running from November to April. In 1996, Tarutao National Marine Park recorded an average annual rainfall of 2,628 millimetres with a mean daily maximum humidity of 90 percent and an average temperature of 27 degrees celsius. The islands of Tarutao, Adang and Rawi have year-round fresh surface water sources, while Lipe Island has only underground fresh water supply.

Coral reefs at low tide on the eastern coast of Lipe Island

The islands of the Adang Archipelago are surrounded by fringe reefs, and the area is a valuable marine nursery habitat. Of the approximately 280 coral species identified in Thailand, 137 species are found in the Adang Archipelago. The reefs are subject to semi-diurnal tides and are mostly found within 50-300 metres of the shoreline, ranging from depths of three to twelve metres (Phongsuwan and Changsang 1987:142, 152). The coral reefs in the area suffered minimal damage during the 2004 tsunami.

There are 288 species of fish in the Adang Archipelago (Phuket Marine Biological Centre 1998:n.p). The area is also rich with other kinds of sea life, such as manatees, dolphins, whales and a wide variety of molluscs. Turtles were once reportedly abundant and used to lay their eggs on Adang and Rawi islands from September to December, but have recently become very rare. Dolphins, sea turtles, giant clams and lobsters are among the protected species in the Adang Archipelago.

The large islands, Adang and Rawi, are covered almost entirely with thick tropical rainforest. Eighty-five percent of the forest area is moist evergreen forest. The rest of the land area is composed of dry evergreen, deciduous, mangrove and beach forests. Wild boars, mouse deer, crab-eating macaques, dusky langurs and monitor lizards are common. Lipe, the most heavily inhabited island, is relatively flat and had the original name of *pulaw nipih* (*pulaw* translates as island and *nipih* as flat or thin in Urak Lawoi).

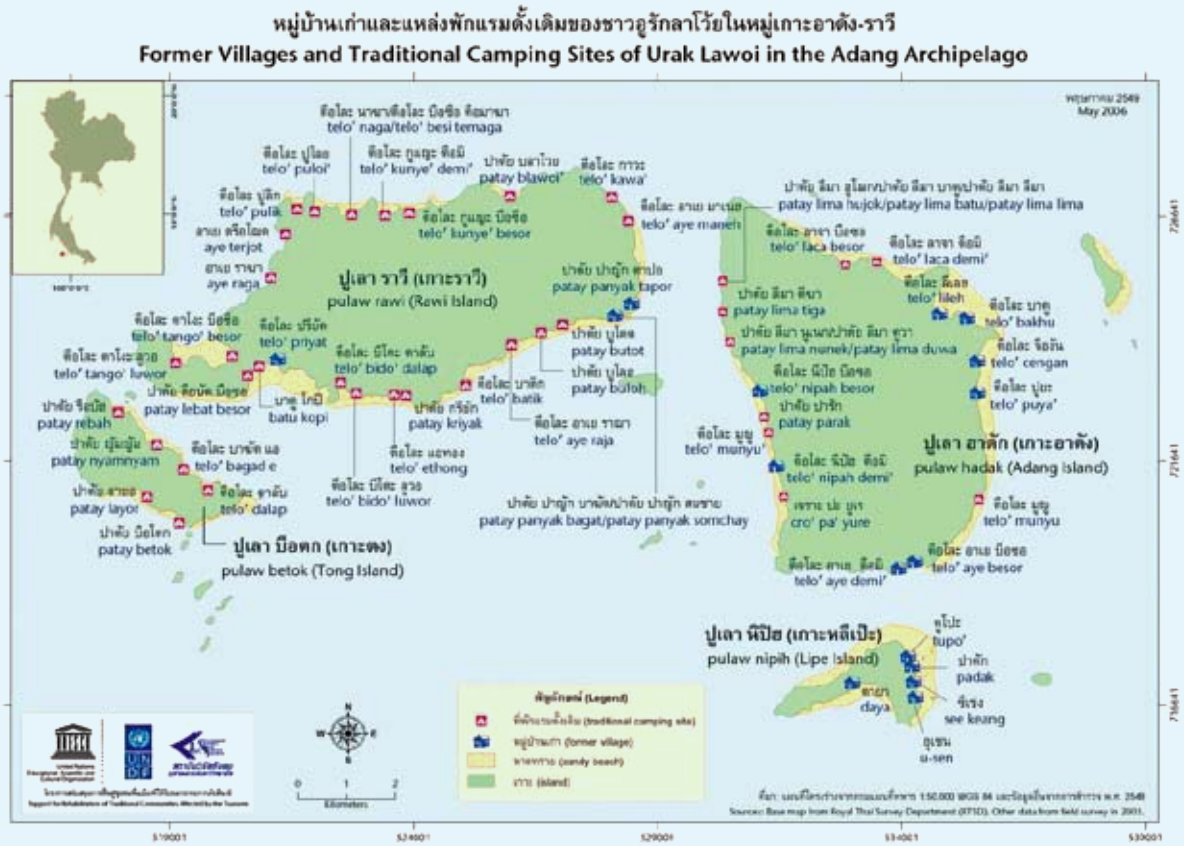
1.2 The Urak Lawoi

The Urak Lawoi have had a recorded permanent presence in the Adang Archipelago since 1909 (Mahidol University 1974:5, 97-98,101). Gunung Jarai of Kedah State in Malaysia is referred to as the Urak Lawoi's ancestral and mythical home, but Lanta Island in Thailand is considered the original home of the Urak Lawoi in the Adang Archipelago. There is no existing research on how many Urak Lawoi first came to permanently settle in the Adang Archipelago, although some elder *taukays* estimate that there were as many as 40-50 houses on Lipe Island in the 1950s.

Traditionally, the Urak Lawoi led a semi-nomadic lifestyle and constructed semi-permanent houses on the beaches using locally available materials. Small villages were located on Lipe, Adang and Rawi islands. During the dry season, the Urak Lawoi travelled throughout the Archipelago to forage for food. The period of foraging ranged from a couple of days to several months, depending on the distance from home, weather and harvests. It was common for whole families to travel together during these excursions. Shelter during these trips consisted of simple beach shelters for sleeping and cooking, usually in locations that were well protected from strong winds and had access to fresh water.

The sea and coastal harvesting practices and semi-nomadic lifestyle of the Urak Lawoi have had considerable influence on many aspects of their culture. Similarly to the Moken, the Urak Lawoi were able to optimise their use of a wide variety of marine life, including fish, molluscs and sea cucumbers, as well as wood needed for making cooking charcoal, fish traps, houses and boats. This ensured that resources did not normally require storage because production was carried out daily. While men primarily harvested sea products, women also helped with hook-and-line fishing, the harvesting of molluscs in the inter-tidal zone and after-catch processes.

A Urak Lawoi shaman playing a rammana drum



Former villages and traditional camping sites of the Urak Lawoi in the Adang Archipelago

1.3 Tarutao National Marine Park

Tarutao National Marine Park was established in 1974 and covers an area of 1,490 square kilometres, of which 85 percent is sea water. It is the largest national marine park in Thailand, and consists of two archipelagos, Tarutao and Adang, with a total of 51 islands. The main island of the Park, Tarutao, which is outside the Adang Archipelago, was a remote penal colony for serious felons and political prisoners from 1939-1946. At one time, it held as many as 3,000 prisoners. From 1944-1946, both the Tarutao and Adang archipelagos became bases for pirates who regularly attacked commercial ships passing through the Straits of Malacca. After the British Royal Navy rid the area of pirates in 1946, Tarutao was deserted, but remained under the control of the Department of Corrections.

Park offices were established in the Adang Archipelago in 1977 and the Fishery Office was built in 1988. This limited access to, and rights over, local resources. The Urak Lawoi's nomadic way of life was consequently constrained. In the 1980s, the Park Authority pressured Urak Lawoi villagers living on Adang and Rawi islands to move to Lipe Island and to discontinue their nomadic foraging practices. After this relocation, only a small group of Urak Lawoi continued to live on the northeast of Adang Island.

2.0 Socio-economic Data

2.1 Population, Mobility and Settlement

In 1974, there were 387 Urak Lawoi on Lipe and Adang islands. By 2004, the population in the Adang Archipelago had increased to 880 people in 155 households (TAO, Ko Sarai 2004). There are 440 male and 440 female inhabitants in the Adang Archipelago, most of whom live on Lipe Island. Seventeen households with 106 inhabitants are located on *telo' puya'* and *telo' cengan* on the northeastern part of Adang (these names are used by both Thais and the Urak Lawoi). Thirty-five percent of the population are younger than 19 years of age, and 46 percent are between 20 and 49 years old. The average household size is 5.7 persons. While there are no official statistics for migration rates, it appears that many Urak Lawoi community members migrate on a seasonal basis for employment-related reasons.

Unlike the Moken, the majority of Urak Lawoi have Thai citizenship. Buddhism is the most widely practised religion, however, animism and Christianity are also practised. The most commonly spoken language in Urak Lawoi households remains Urak Lawoi, which is a non-written Malayo-Polynesian language. While 45 percent of households used only Urak Lawoi at home, a significant proportion of households also use Thai or Malay (47 percent). School children are taught exclusively in the Thai language.

Ancestral shrines

Urak Lawoi children

Although a school was established on Lipe Island in 1958, 13 percent of Urak Lawoi have not received any formal education. Twenty-five percent of the population have only four years of formal education and 27 percent have completed six years of schooling. Only five percent of the people have attained a high school educational level and, on average, three people per household are able to read and write.

Before land ownership documents became effective in 1954, land resources in the Adang Archipelago were used communally by the Urak Lawoi. Despite the Park's establishment in 1974, land speculators and investors purchased considerable land area previously owned by Urak Lawoi throughout the 1970s and 1980s. According to the Land Office of Satun Province, in 1998 nearly 40 percent of the land on Lipe Island was privately owned. However, except for the family members of the former village head and a limited number of others, it is not clear who legally owns large sections of land on Lipe Island. With tourism development, land has become very valuable and conflicts over ownership are increasingly common. Beachfront property is especially valuable and people without legal land documentation have been forced to move inland.

The survey conducted in 2005 revealed that only eight percent of household residents owned land. Eighty-nine percent of the people surveyed viewed land rights as the most important community problem. Similarly, park authorities viewed land encroachment and development on Lipe Island as one of the most significant resource management problems. While land ownership cases are pending in court, local people and land speculators continue to assert their rights to land through residency or construction.

Lipe Island is a main hub in the Archipelago. It serves as a location for many public buildings and services, such as the school, health centre, police station and shops. At present, electricity is provided by small generators, which are usually shared by several households. A new water system, installed in 2006, pipes water to Lipe Island from Adang to alleviate water shortages caused by the large number of visitors. Households must pay a fee to access this piped water. Those who cannot afford to connect the pipe to their house continue to use well water to wash and retrieve drinking water from Adang or Rawi.

Lipe has no systematic waste disposal or sewage system. Dirt roads were built in 2006, but are of only limited value as the routes do not represent the paths people normally use. There are no hard surfaced roads or piers in the Archipelago. The number of motorcycles on Lipe Island has increased from 1 in 1998 to at least 50 in 2005. At the end of 2004, a mobile telephone tower was erected in the middle of the village and mobile phones have become common among younger villagers.

2.2 Indigenous Knowledge

The Urak Lawoi are known for their skills in sea-related activities, particularly diving and fishing. To hunt successfully in a marine environment, the Urak Lawoi have vast knowledge about local geography, the natural conditions of the area, tides, the lunar cycle, local wind / wave patterns and animal behaviour. Specialised fishing skills and knowledge of food processing techniques are also essential. During hunting and foraging trips, all members of Urak Lawoi families learn about the geography of the Adang Archipelago, the local resources in terrestrial and marine environments and the skills required to survive in these environments.

The extent of this knowledge can be seen by examining the Urak Lawoi language. The Urak Lawoi use over 20 names to describe the different types of sea cucumbers that can be eaten or used as medicine. The Urak Lawoi also identify six types of giant clams, which are a favourite food, while a recent scientific study identifies only three varieties in the area (Chantrapornsyl *et al*, 1996). Further taxonomical investigation to clarify whether the types identified by the Urak Lawoi are distinctly different species would be a worthwhile area of research to pursue. In addition to the commonly known northeast and southwest monsoon winds, the Urak Lawoi name and describe six other wind types, each with a unique character that effects the sea water as well as travelling and fishing conditions. For example, *angen barai'* (the west wind) is described as a strong wind that generates four to five metre waves with long intervals between sets. This wind causes increased rainfall and warm, murky seawater with the associated poor visibility making travel difficult during this time. However, *angen barai'* does present very good conditions for hook-and-line and trap fishing as king mackerel come close to the shore to breed and feed during this wind. Appendix 4 provides an overview of the different types of wind identified by the Urak Lawoi.

Similarly to the Moken, the Urak Lawoi have traditionally acquired knowledge and skills through experiential learning. Because the Urak Lawoi language is non-written, it is not possible for people to acquire this knowledge through studying texts. As experiential activities are practiced less frequently due to an increasingly sedentary lifestyle, knowledge is progressively retained only by community elders. The aging population therefore jeopardises the continued existence of indigenous knowledge into the future.

2.3 Education and Health

Methods of learning, knowledge transfer and education in the Archipelago are undergoing significant change. Mainstream formal school-based education, access to media and increased interaction with outsiders are all contributing to these changes. Ban Ko Adang School, which was founded in 1958 with four grades, now offers education from pre-school through to the ninth grade (approximately 4 to 14 years old). When constructed, the school was viewed as a place for Urak Lawoi children to learn to read and write. Urak Lawoi parents are proud of their children's literacy. In the past, most male children left school after the primary level to work in the fishing industry. Consequently, adult females in the Adang Archipelago have more schooling than their male counterparts; a mean average of 4.5 years compared to only 2.6 years for men.

Urak Lawoi school children on Lipe Island

In 2005, there were 12 teachers and 180 students at Bo Ko Adang school, with 44 at the early childhood level, 111 at the primary level and 25 at the secondary level. All of the teachers in the local school, except one who was hired in 2005, are non-Urak Lawoi and have only limited knowledge of the local environment and culture. All teachers have families on the mainland and are frequently absent from school due to commuting back for visits, especially during the monsoon season when travel can be difficult. Due to increasing contact with outsiders and enhanced employment opportunities associated with higher education, more children are continuing their education beyond the primary level. In 2005, 25 students were enrolled at the school in the secondary level, compared to only five students in 1998. Some families, especially those with savings and extensive contacts with mainland residents, are now buying homes and educating their children on the mainland in Satun. Increasingly, younger Urak Lawoi

are seeking livelihood opportunities that are not sea-related. Skills that are needed in the tourism industry, such as English language ability, are becoming more important than fishing skills.

Health services on Lipe are limited. The public health station is staffed by only one official and offers only basic medical services. When this official travels to the mainland, there are no health services and the local people depend upon alternative treatments involving traditional medicines delivered by local healers. People with severe illnesses are taken to clinics or a hospital in Satun Province. Recently, there have been a several reported cases of HIV/AIDS.

2.4 Livelihood, Income and Consumption

The Urak Lawoi have traditionally led a subsistence-based livelihood and a wide variety of both terrestrial and marine resources were used to support their livelihood. Due to their small population and the large size of the Archipelago, Urak Lawoi elders report no history of scarcity in the area. Small scale, simple fishing tools and methods such as spearing, hook-and-line, small bamboo trapping and hand collecting in the inter-tidal zone were common and also contributed to the non overexploitation of resources.

Boys learning hook-and-line fishing technique

The first *taukay* arrived at the Adang Archipelago in the early 1950s. *Taukay* facilitated the exchange of goods between the Adang Archipelago and the mainland through assisting the Urak Lawoi's contact with outsiders. They traded goods such as rice, clothes and liquor for sea products caught by the Urak Lawoi. These sea products included fish, sea cucumbers, shells, turtles and their eggs. Through the *taukay* and further contact with other outsiders, the Urak Lawoi were introduced to more modern and higher yielding fishing methods, including destructive dynamite and drive-in net fishing.[7] Recently, a few Urak Lawoi have become *taukay*. Some considered the dependency on *taukay* as negative because of the perpetual indebtedness of Urak Lawoi to *taukay* that the relationship inferred. Others preferred working for a *taukay* out of convenience and security reasons, especially in cases of emergency. Eighty-five percent of male household leaders currently work for a *taukay,* and some have done so for their entire life. For many, dependency on *taukay* is a matter of necessity due to insufficient capital to acquire competitive fishing tools or links to outside markets. *Taukay* provide boats and fishing tools in exchange for Urak Lawoi labour and fishing skills. *Taukay* are also the primary buyers of the Urak Lawoi's harvests.

Women preparing sea urchins

When the Tarutao National Marine Park was established, rules and regulations controlling resource use were implemented. Most of these rules, if followed stringently, would prohibit local people from living in the area. Therefore, compromises have been made by local Park officials to allow the Urak Lawoi to pursue their livelihood. The compromises which permit limited harvesting opened opportunities for outsiders to profit from exploiting local resources since the Urak Lawoi generate a catch that goes well beyond subsistence needs.

Although the Urak Lawoi of the Adang Archipelago are considered economically advantaged in comparison to other Urak Lawoi groups or small-scale fishing communities along the mainland coasts, their

7 This fishing method became popular after dynamite fishing was banned in the 1980s. It is usually deployed in a coral reef area at a depth between 5-20 metres and requires 9-12 people running over the reef. Divers chase fish out of rock piles or coral heads towards nets lying on coral reefs by using metal rings or banging rocks to make loud noises under water. This method was banned due to its destructive impact on coral reefs.

Trap fishing

fishery/tourism-based livelihood is competitive and volatile. Over-fishing, destructive fishing methods and the recent collapse of the tourist industry in southern Thailand due to violent incidents in the three provinces surrounding Satun and the 2004 tsunami resulted in a large reduction in income for the Urak Lawoi. To alleviate the diminished income generated from tourism, the Urak Lawoi recently started to harvest large numbers of sea cucumbers for outside markets and have also begun to utilise illegal drive-in net fishing methods once more. Although Park and Fishery officials became aware of practices, enforcement efforts were compromised due to concerns about the livelihood of the Urak Lawoi. This leniency also proved a financial benefit to the entrepreneurs who buy and market the products harvested by the Urak Lawoi.

In the household survey, 88 percent of the people listed fishing as either a primary or secondary occupation. Until recently, the coastal and marine activities of the Urak Lawoi and their economy were related almost exclusively to marine harvesting. Fishing is the principle occupation during the monsoon season, from May through October/ November. The main fishing methods are hook-and-line and trap fishing, with hook-and-line fishing being a more preferred method during the monsoon season. Most people employed in this industry are men under the age of 50 years, yet 10-30 percent of women also hook-and-line fish with their families and a few younger women may go to recover traps with male family members (the range reflects seasonal variation). Payments by *taukay* generally take place every six months

Urak Lawoi taxi boat driver servicing tourists

before the *loi rua* festivals.[8] Records are kept by *taukay* for Urak Lawoi harvest incomes and expenses. According to *taukay,* fishing income is approximately 2,000 baht (approximately US $54.63) a month. This income is considered moderate, but is consistent throughout the entire year.

Tourism has recently become the most important secondary occupation of the Urak Lawoi in the dry season, from December through to April.[9] During this period, fishing is less productive and tourism provides an important source of income. Among women, especially those under the age of 30, it is now the primary occupation. Even though the tourist season only lasts approximately five months, the monetary value of tourist services is considered to be high in comparison to fishing. For example, a taxi boat driver who owns his boat can earn 1,000 baht per day (approximately US $27.32). The number of local people working in resorts has increased from 45 people in 1997 to 75 people in 2005; 44 percent of household leaders were involved in tourism in 2005, compared to seven percent in 1998.

Diver using a crude air pipe

In addition to fishing and tourism, daily wage earning activities usually take place during the tourist season. Wage earning jobs include construction and grounds maintenance of resorts, repairing boats and working for the Park. Shops or stalls are open in the dry season to sell food, snacks and drinks. The daily wage ranges from 200-250 baht (under US $6.83). A very small number of local people have been hired by the Park service. In 2005, eight Urak Lawoi women were hired on a monthly basis to work at the Adang Park Station, while one Urak Lawoi man was hired as a boatman.

The livelihood of the Urak Lawoi is dependent on local marine and coastal resources and activities. Only 12 percent of the surveyed people had household income generated from an outside source. Sixty-four percent reported that their income level was sufficient, 28 percent had to borrow money, while only eight percent were able to save. Urak Lawoi have few expenses in terms of housing or food. Alcohol abuse is increasingly common, particularly amongst men and older women. Although the Urak Lawoi still share harvests with relatives and other people in need within the community, disparities in economic status and material possessions are becoming more obvious.

8 ***A loi rua,*** or boat floating ceremony and festival, is considered the most important traditional ceremony of the Urak Lawoi. The festival takes place twice a year, for three days and three nights, during the full moon of the sixth and eleventh months of the lunar calendar. The Urak Lawoi use the occasion to pay respect to their ancestors and symbolically float away their misfortune with a ceremonial small boat constructed out of wood from sallaca palms and blackboard trees. A documentary film of the ceremony was produced by UNESCO, UNDP and CUSRI in 2005.

9 There is a socio-economic data collection form used annually by the Sub-District Administration Office (TAO) to record livelihood/occupation data among the Urak Lawoi in the Adang Archipelago. The 2004 form did not list any occupation related to the tourism industry and, consequently, this data was not collected despite the fact that it has become one of the most important local occupations.

2.5 Future Aspirations

Despite the fact that the Urak Lawoi language is still spoken at home and more than half of the parents in the household survey indicated that they want their children to continue to reside on Lipe Island and earn a living in the fishing or tourism industries, the reality is that the Urak Lawoi way of life is increasingly similar to that of mainland Thais. The younger Urak Lawoi generation has a particular interest in obtaining material goods, such as motorcycles, television sets, stereos, DVD players and mobile phones.

There are significant gender disparities among the Urak Lawoi with respect to the effects of modernisation and increasing integration into global markets and cash economies, with a greater effect on the lives of women, in particular. Technology also plays a large role in altering women's way of life. The motorisation of long-tail boats and the availability of ice make it possible for men to fish almost anywhere in the Archipelago and return within the same day. This reduces the need for post-catch preservation processing, which was typically done by women. In addition, household necessities such as rattan mats and baskets are increasingly purchased rather than being made in the home, further reducing work opportunities for women.

An Urak Lawoi couple getting married in Thai and western clothing

Urak Lawoi women in their free time

Traditional parade during loi rua festival

3.0 Coastal Resource Management

3.1 Indigenous Ecological Knowledge

Commercial fishing vessel

Although the Urak Lawoi did not have an official resource management plan in place prior to the establishment of Tarutao National Marine Park, the natural resources of the Adang Archipelago were nonetheless effectively managed through an intimate association with the location built on informal indigenous ecological knowledge. Similarly to the Moken, the subsistence lifestyle and semi-nomadic food foraging habits of the Urak Lawoi, combined with their detailed environmental knowledge and traditional harvesting tools, actively supported the sustainability of local resources. The Urak Lawoi's traditional resource management patterns were deeply integrated with their lifestyle and beliefs. The Urak Lawoi hold a strong belief in spirits (*jao ti*), which they believe maintain the environment. Consequently, the Urak Lawoi are careful to respect and maintain the environmental quality of a place in order not to upset these spirits.

While management plans for protected areas need to take traditional knowledge and conservation practices into consideration, there is also a need to educate and create awareness among the Urak Lawoi about the importance of sustainable resource use. The semi-nomadic lifestyle and subsistence economy of the Urak Lawoi has resulted in a common belief that sea life cannot be depleted. Many Urak Lawoi blame local problems on external parties such as large-scale commercial fishing operations or land speculators. Although these groups are certainly partially responsible, there is little recognition amongst the Urak Lawoi that their changing lifestyle may also be contributing to the resource depletion. It is therefore essential to build awareness among all stakeholder groups about the various causes and effects of resource depletion in managing protected areas. A collaborative approach to protected area management is critical.

According to survey respondents, the concept of conservation was introduced by government officials when the Park was established. Today, support for conservation is based on individual concern, rather than the common practices of a community. Paradoxically, despite the growing pressure on resources that increased tourism presents, tourists expect the natural environment to be in a good condition and, thus, act on the demand side to stimulate supply side activity by the Urak Lawoi. However, as natural resources are a "common good," there is little incentive for individual action to internalise the negative externalities arising from resource utilisation and waste creation. Accordingly, data indicates that there is a lack of Urak Lawoi participation in resource management. The SocMon study showed that local villagers, fishermen and other people whose livelihoods depend directly on natural resources were considered the groups with the highest interest in conserving these resources, yet were also the groups with the lowest level of participation in the management of these resources. Nearly 40 percent of the household respondents did not feel that they participated in coastal resource management. Participation is critical for the empowerment of community members to bring about positive changes for the benefit of the environment and community.

Stakeholder meeting on Lipe Island

Village leadership and coordination has generally been led by non-Urak Lawoi. One in four villagers surveyed felt that the village head was not in tune with the community's needs and was not interested in helping them with their problems. Twenty-six percent of the villagers felt that strong leadership was necessary to coordinate villagers to work towards solving problems.

Community organisations are one way in which Urak Lawoi can more effectively participate in resource management. The Urak Lawoi have only ever had two local community organisations. These are a long-tailed boat association and a guide club. The boat association, which is still operating, was founded in 1997 by local boat owners who ran a taxi boat service based on agreed prices. Many of the people surveyed regarded this association as a successful endeavour in coastal management since it helps to protect coral reefs by using responsible boating practices. The second organisation, a now discontinued guide club, was founded and supported by a European NGO in 1999. The club enabled a small number of Urak Lawoi to become certified dive masters and official guides. The club was discontinued due to a lack of equipment maintenance and a lack of interest in self-organisation.

3.2 Tarutao National Marine Park Policy and Management

Tourism Development

Similar to many other protected areas of Thailand, tourism development in the Adang Archipelago started with the establishment of the Tarutao National Marine Park. The first resort in the Adang Archipelago, a row of seven houses with a shared bathroom, was opened in 1984 by the family of the village head to accommodate officials who visited the area. In the 1980s, passenger boats from Satun to Lipe Island began operating and were running three times a week by the 1990s. The ferry now runs at least twice a day. In the past five years, the number of tourist bungalows has increased from 153 to 496. Lipe Island has become increasingly well known as an attractive island destination with little development and good natural conditions. Eighty-one percent of the visitors surveyed reported that it was their first visit to the Archipelago. Nearly half of repeat tourists reported that more comfortable accommodation and ease of access were the most positive changes, while overdevelopment and environmental degradation were mentioned as the most negative. These seemingly contradicting attitudes towards tourism development highlight the need to balance the demand for tourist services with the need to maintain the natural beauty of the area. Appendix 5 provides an overview of recent tourism development on Lipe Island.

New tourist resort on Lipe Island

Clearing land for tourist bungalows

Before the new piped water system that brings water from Adang Island was completed in 2006, new wells were dug and well water was continuously pumped even when the water level was low and of poor quality. Since the increase in tourism, a lot of the forest on Lipe Island has been cleared to make space for bungalows. Fifty-six percent of the people interviewed in this study described the condition of the forest on Lipe Island as 'very bad'. While the natural terrestrial resources of Adang and Rawi islands were rated as 'very good', other negative tourism impacts have spread throughout the Archipelago from tourist excursions.

Fish meal processing vessel in the park

Tarutao National Marine Park

Tarutao National Marine Park consists of three administrative units, Tarutao Island, Adang Archipelago and Klang Island. In 2005, there were 36 park staff members in the three stations. Two of these staff members are permanent government officials, while the rest are hired on a monthly basis. During the tourist season, most of the Park's efforts are focused on servicing visitors. During the non-tourist season, park employees undertake patrol work, maintenance and renovation of tourist facilities.

Despite the establishment of Tarutao National Marine Park over 30 years ago, coastal and marine resource management problems persist in the Adang Archipelago. When the nomination of Tarutao National Marine Park as a World Heritage Site was declined in 1991 by the National World Heritage Committee of Thailand, a technical evaluation pointed out major problems with illegal fishing in Park waters, damage to coral reefs due to tourism and blast fishing, loss of spawning and nursing grounds and a drastic drop of nesting turtles. With the exception of dynamite fishing, which is now under control, these problems persist. In addition to these problems, the Park is facing enormous pressure due to provincial and national economic development policies favouring tourism development. Land titles were issued on Lipe Island even after the declaration of Tarutao National Marine Park in 1974. Land encroachment for tourism resorts is common, and land ownership remains an unclear and unsettled issue.

There are several obstacles to effective park management in Tarutao National Marine Park. Frequent changes in personnel have hampered long-term planning and management efforts. In addition, many of the Park's staff do not have backgrounds in marine and coastal resource management, and are therefore ill-equipped to effectively manage a Marine Protected Area. Finally, the park budget does not allow for a sufficient number of boats, personnel and equipment for strong enforcement. The situation is so severe that the Park periodically does not always have a functional boat that can patrol or travel to the mainland.

Insufficient enforcement has resulted in the widespread over-exploitation of natural resources. Although there is a limited budget to support enforcement activities, even modest amounts of official patrolling can make a significant difference to illegal fishing in the area. The sight of a patrol boat, whether it is on duty or not, has the effect of decreasing the number of commercial fishing boats and illegal activities. Similar results can be seen with patrols carried out by just a few unarmed officials in a small dinghy boat. The resulting deterrent has proven that illegal fishing can be curbed in the area.

The Park must split its limited resources between natural resource management efforts and providing services to visitors. Historically, priority has been given to accommodate visitors during the tourist season. Visitors indicate that the main tasks of park officials should be nature conservation, providing knowledge and education on conservation, conducting research on island and marine ecology and policing illegal activities. Providing tourist services was considered by visitors to be the least important responsibility of the Park.

Marine Life Conservation Unit

Visitors and the park ranger

In 1988, the Department of Fisheries initiated a marine life conservation unit on Lipe Island. The unit is supervised by the Centre for Marine Fisheries Protection and Suppression, Andaman Sea, Krabi Province. Their activities in fiscal year 2005 focused on patrolling and controlling the fishery and the transmission of management technologies. The unit has two patrol boats that cover an area of 236 km^2 of the Andaman Sea in several provinces. It employs two government officials, five permanent and eight temporary staff. Patrolling in the area has been infrequent and largely ineffective due to the vast area of coverage and the small numbers of patrol boats and government staff, who actually have the right to arrest those who violate fishery laws.

Information gathered during interviews indicates that most local people do not understand the difference between national park laws and fishery laws, which may conflict. According to the 1961 National Park Act, any harvesting of sea life is illegal. However, the Fishery Act B.E. 2490 (1947) allows fishing as long as it is practiced according to Fishery Office rules and regulations.

Local and Visitor Perceptions of Coastal and Marine Management

Although many Urak Lawoi are interested in benefiting from the growth of the tourism industry, visitors report unease with the growing popularity of the area. Twenty-seven percent of surveyed tourists felt that the number of current visitors is too high given the associated environmental impact. Only 12 percent thought that the number of visitors should be increased.

The majority of tourists to the Adang Archipelago are foreigners, with 81 percent coming from Europe and North America. Over 80 percent of the visitors are between 20 and 39 years old. Thai tourists normally visit with large group tours during holidays and long weekends. While the majority of Thai tourists stay for less than three days, most foreigners stay an average of ten days.

In the opinion of surveyed tourists, the main problems of the community include the disintegration of the traditional culture and the degradation of natural resources. Nearly half of the surveyed tourists mentioned the changing way of life of the Urak Lawoi as the most significant cultural impact of tourism. Fifty-eight percent of the people in the tourist survey said that tourism degrades the natural resources and environment of the Park. Among all surveyed visitors, waste management was rated as the second most important problem of coastal and marine resource management in the Adang Archipelago, with the cleanliness of Lipe Island rated as being very poor. It is common for the Urak Lawoi to dispose of their garbage on

Burning garbage on the beach

the beach and rely on the rising tide to wash it into the ocean. Since most waste is not biodegradable and there is no waste or sewage disposal system, waste is piled up, buried or burnt. Very few houses or resorts on Lipe Island sort and recycle their waste.

A significant challenge in coastal resource management is the scarcity of official leaders and governmental officials who are willing and able to work with the Urak Lawoi community to improve the situation. Leaders and officials are perceived as lacking time, commitment, skills and resources to make a difference to the success of management efforts. There are varying levels of awareness by community members to the rules and regulations governing coastal resource management in the Adang Archipelago.

More than 80 percent of the household members in the SocMon study said that they were aware of the rules and regulations pertaining to fish and marine life. On the contrary, 74 percent of the interviewed household members stated that they were not aware of any rules and regulations governing tourist resort development. The most well known fishery rules and regulations include the banning of large-scale commercial boats (such as trawlers and light luring anchovy purse seines) fishing near the shore; the banning of dynamite and drive-in net fishing methods, regulations on the mesh size of fishing nets, the prohibition of traps placed on coral reefs and the harvesting of dolphins, turtles, giant clams, decorative coral fishes and corals. However, in-depth interviews revealed that these rules are often not accurately understood. Among the surveyed Urak Lawoi households, 80 percent said they partly complied with the rules and regulations and 86 percent believed that the rules and regulations are partly enforced.

Among the surveyed tourists, 62 percent reported the impression that the Park and Fishery officials partly do their duties, while 78 percent did not see Park or Fishery rules being enforced. Among the visitors, more than 80 percent of Thai respondents in the survey reported to be aware of rules and regulations in the Park that pertained to their own activities, while this figure fell to less than 50 percent for non-Thai visitor responses. More than 70 percent of Thai respondents observed other visitors adhering to these rules, while less than 55 percent of the foreign tourists shared this perception. The introduction of visitor fees to support nature conservation has been viewed positively by tourists in other studies and could be considered as a viable policy to implement in Tarutao National Marine Park.

3.3 Other Stakeholders

The results of the SocMon household study indicate that solving coastal management problems will require the cooperation of all stakeholders and the clear and consistent handling of problems by officials. There are at least ten main stakeholder groups whose roles are important for managing coastal and marine resources in the Adang Archipelago, but there has been little or no collaboration among them. These groups have different interests related to resource use, some of which conflict strongly. For example, while the Park is concerned with conservation, the fishing operators seek to maximise their profits and the Urak Lawoi would like to secure their livelihood. Historically, the Park has suffered from a lack of supportive coastal management collaboration from other stakeholders; both official and non-official. Even amongst stakeholders who share similar conservation goals, ideas regarding management methods differ. Stakeholder groups that consist of government officials (including Park, Fishery and Provincial officers), were considered by survey respondents to be the groups with the least stake and, despite their official role in management, were not seen as containing actual decision makers and managers. On the other hand, local *taukay* and other fish buyers were regarded as the only group with the power and the will to manage the resources effectively.

Urak Lawoi children playing with garbage foam

Part IV:

Conclusions and Recommendations: Incorporating Socio-economic Data into Protected Area Management

1.0 The Use of Socio-economic Data in Management Planning of Protected Areas

Information Centre

Several sets of guidelines have been developed for the assessment and evaluation of management performance in national parks.[10] These guidelines consider the socio-economic factors in protected area management. World Bank guidelines include the input and participation of indigenous people, community welfare, as well as socio-economic monitoring. Other guidelines, developed jointly by the World Conservation Union (IUCN), World Wildlife Foundation (WWF) and NOAA, place emphasis on biophysical indicators as well as socio-economic and governance indicators.

In Thailand, there is a significant opportunity to incorporate socio-economic data into national park management plans. There are currently 102 national parks in the country, but only 51 of these have management plans in place. The "'joint Management of Protected Areas" project at the Protected Area Innovation Unit (PAIU) within the Department of National Parks, Wildlife and Plant Conservation has resulted in the development of a framework for the participatory monitoring and evaluation of protected area management. One part of the project deals with monitoring the impact that protected areas have on the livelihood and well-being of residents in and around protected areas. Indicators used to measure these impacts include financial capacity (including income, debts and savings), employment security, land use security (including registration of land title), basic needs security (including access to safe drinking water, food and nutrition), conservation friendly practices and community social capital. Although the monitoring and evaluation framework above is targeted only at the project demonstration sites, the project methodology and framework could be expanded and implemented in other protected areas.

In addition, there have been attempts by local communities and organisations to develop mechanisms for research and ecological monitoring. These include studies of wildlife change in Thung Yai Naresuan (conducted by Karen communities and WWF staff), participatory studies of mangrove crabs (conducted by Pred Nai Community, Trat Province with the staff of the Regional Community Forest Centre) and monitoring of wetland fish (conducted by students and villagers at Ban Ise, Sri Saket Province). These types of studies promote the use of indigenous knowledge and local personnel and do not require extensive equipment or technology. Combining both socio-economic and ecological monitoring systems would encourage collaboration among different stakeholders at many levels. It is hoped that this action would generate interest in conservation at the local level, relieving government agencies from having to shoulder the entire burden of management and regulation, themselves.

10 The Scorecard to Assess Progress in Achieving Management Effectiveness Goals for Marine Protected Areas was prepared for the World Bank and most recently revised in July 2004. "How is Your MPA Doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness" was developed by the IUCN, WWF and NOAA in 2004.

2.0 Management Challenges and Recommendations for Improved Coastal Resource Management and Cultural Conservation

Based on the findings of this study, five actions are recommended to improve park management and cultural conservation in the Surin Islands and Tarutao national parks. These recommendations are intended to serve a number of purposes; to sensitise park staff and build their capacity in natural and cultural conservation; encourage stakeholder involvement in conservation policy and practices; develop and strengthen education and outreach programmes for tourists, schools and local communities; provide alternative livelihoods for the Moken and Urak Lawoi based on their specialised environmental knowledge; and recognise the Moken and Urak Lawoi's cultural rights and promote traditional practices as a means for natural resource conservation.

A. Sensitise Staff and Build Capacity

Most of the permanent government officials employed by the Surin Islands and Tarutao national marine parks have expertise in forestry and the management of forest resources. Although the parks do have forest areas, the majority of the locale is marine and coastal. There are very few experts in marine biology and fisheries management employed by the National Parks Authority. The Surin Islands National Marine Park Authority is well aware of this problem and noted in a recent annual report that there was a, "…lack of specialised positions, especially marine science and others which are crucial in conducting research" (Surin Islands National Marine Park 2003:14). Therefore, to improve the management of marine protected areas, it is essential to build the capacity of park staff in marine resource conservation. Once personnel are trained and experienced, they can play critical roles in public education, outreach and nature interpretation.

Previous surveys have emphasised the importance of nature interpretation programmes and the quality of interpretive centres. Although these items are essential, other forms of media should also be considered. Park staff members, themselves, are excellent resources and can take the lead in informing, building awareness and becoming good examples of conservation. It is recommended that the current training programme in place in the national parks be expanded to include all staff regardless of rank or status. Due to the high turnover rate of personnel, staff education and training should be a regular and ongoing activity. Ideally, training could be conducted during the monsoon season, when the parks are closed to tourists. Emphasis should be placed on building staff competency to train one another and to alter the training to suit local needs and contexts.

In addition to building capacity in nature conservation, it is essential that staff develop greater awareness and knowledge of cultural conservation issues. Currently, park staff and the government agencies

that are in charge of decision-making and management planning in the Surin Islands and Tarutao parks have little knowledge of the Moken and Urak Lawoi, and the effects of park management decisions on these communities. There is consequently an urgent need to educate park staff and government officials about the cultural history and practices of the Moken and Urak Lawoi. There currently exists a window of opportunity to revive and promote the traditional livelihood of the Moken and Urak Lawoi and to increase community involvement in formal conservation activities. However, unless action is taken swiftly, it is likely that these communities will experience further erosion of their indigenous knowledge as community elders pass away and as modern consumer behaviour becomes more commonplace.

B. Stakeholder Involvement in Conservation Policy and Practices

There are at least nine groups of Surin Island stakeholders[11] and nine groups in the Adang Archipelago[12]. It is essential to include these groups in park management, conservation efforts and decision-making. Government agencies could contribute greater expertise and financial or human resources to conservation efforts. Medium-scale and large-scale commercial trawlers could become partners in conservation efforts by using target fishing techniques since marine protected areas are often spawning grounds that contribute to the long-term sustainability of fishery resources. Academics, researchers and volunteers could participate through habitat monitoring, species inventories, and preparation of policy proposals. Tour companies and boat operators are essential links to the tourism industry, and could disseminate awareness-raising information to tourists about a park's natural and cultural resources, as well as about threats and opportunities to these assets. This should include awareness of the negative effects that tour guides, boat operators and tourists potentially have on the environment and the local culture. A small portion of the profit from tourism businesses operating in the national parks could be diverted to support park conservation activities. A fee system for visitors could also be implemented to further support conservation initiatives.

There are several benefits to participatory conservation. These benefits include shared management responsibilities, increased effectiveness of management via a closer association with pertinent issues, enhanced trust between state agencies and stakeholders, reduced enforcement expenditures, increased sense of security and stability, greater public awareness and contribution towards a more democratic and participatory society. Some good examples of past participatory practices include co-operation between the Surin Islands National Marine Park and a media documentary company to produce an educational video to inform tourists about appropriate behaviour in protected areas. Also, the Park sought help from boat operators to collect waste and transport it to the mainland.

11 These stakeholders are identified as: Fisheries Conservation Unit; Sub-district Administrative Organisation; District Office; Thai and foreign visitors to the islands; tour business operators, boat operators; medium-scale to large-scale commercial trawlers; academics, researchers and volunteers; NGOs; and the Moken and other local communities.

12 These stakeholders are identified as: Urak Lawoi, entrepreneurs and middlemen, tourist businesses, park officials, Fisheries Conservation Unit, Tambon Administrative Office, Government staff of Satun Province, commercial fishing vessels, Thai and foreign tourists.

Large trawlers shelter in many bays of the Surin Islands during the rainy season

The Moken and Urak Lawoi communities are the major stakeholders in the respective National Marine Parks but, instead of being considered partners in conservation, they are more often viewed by the Park Authorities as resource users. Local Moken and Urak Lawoi communities possess significant knowledge and unique skills related to the local marine and terrestrial resources and are consequently in a good position to share their knowledge with other stakeholder groups to assist in the conservation of these resources. These communities are also well placed to assist the Park Authority with enforcement efforts. Facilitators will be required to involve the Moken and Urak Lawoi in management and development plans and activities. Skilled and trusted facilitators can create channels for communication and provide indigenous communities with opportunities to voice their concerns and opinions in meetings with other stakeholders. Essential to this exchange and vital to avoid what Cooke and Kothari (2001) term "the tyranny of participation" is the genuine appreciation of these concerns and action to mitigate them so as to circumvent using participation to justify bad decisions.

C. Develop and Strengthen Outreach Programmes

Most national parks in Thailand help to generate public awareness through interpretative exhibits, and this approach could be complemented with a more proactive approach that adopts outreach programmes with tourists and local communities. Collaboration with tourist business operators to inform and sensitise tourists prior to their arrival in the parks and the establishment of a visitor's centre on Lipe Island would be positive steps towards achieving this goal.

In addition to educating and building the awareness of tourists, the findings from this research indicate that local communities would also benefit from greater awareness of the mission and activities of the national marine parks and the different roles and responsibilities of the Park Authorities and the Fisheries Conservation Unit. Community liaison officers could enhance communication and involve the communities in the conservation effort. Outreach education and conservation programmes could be developed by responsible agencies of the Park and Fishery departments and by local schools. Topics related to the limits of small island capacity and the fragility of local resources could be integrated into the school curriculum. The curriculum could also emphasise both traditional and modern conservation methods to maintain the transmission of traditional knowledge. It is also important to involve the Moken and Urak Lawoi as teachers in the outreach programmes, particularly since park officials and visitors have limited local knowledge. Integration of indigenous knowledge in both the formal school curriculum and in outreach education programmes will help support the conservation of indigenous knowledge.

There is also a need to build awareness about the impact of local practices, such as collecting and selling seashells and other marine animals. The parks should make efforts to persuade and motivate local people, through educational activities and public relations, to abandon these practices in place of more sustainable opportunities for income generation. It is also necessary to simultaneously exert measures and incentives so that staff adhere to park rules and regulations. If the rules are not followed by park staff, the resulting mistrust by the Moken and Urak Lawoi communities may pose an increased obstacle to future conservation efforts.

D. Provide Alternative Livelihood Options for the Moken and the Urak Lawoi

Alternative livelihoods for the Moken and Urak Lawoi need to be promoted if real conservation is to be achieved within the Surin Islands and Tarutao parks. Participatory consultation should take place to identify alternative and sustainable occupations that are appropriate to the local context. A complete ban on the use of natural resources or other strong measures is impractical and would serve only to create conflict and resistance.

Employment by the Surin Islands National Marine Park has helped some members of the Moken community earn an income without exploiting natural resources. However, this work is only obtained by a very few persons, and caution must be observed since these occupations rely on unskilled labour and rarely encourage the Moken to retain their marine knowledge and skills.

The Moken and Urak Lawoi's deep knowledge of their surrounding marine and forest environment and of their culture qualify them to be knowledgeable participants in ecological and cultural tourism endeavours. Although many have the potential to become tourist guides, training in skills, such as language, communication and cultural sensitivity, is required. In addition to training, the Moken and Urak Lawoi require support in establishing a system that caters to ecotourism as well as assistance in its operation. With appropriate training and support, it is possible that Moken and Urak Lawoi could become national park rangers with intimate and long-term knowledge of and commitment to the islands. In addition to creating employment opportunities as tourist guides, the Moken could also develop enhanced employment options in creating handicrafts. To sustain and improve these practices, continuous support in terms of skill improvement, provision of sustainably produced raw materials and basic tools and access to a regular market are required.

Making a wooden boat to sell as a souvenir to generate supplemental income in Surin National Marine Park

In the Adang Archipelago, it is recommended that the local Park and Fishery offices give priority to hiring local people, in particular the Urak Lawoi. Since the Urak Lawoi have Thai citizenship, it is much easier for the park to hire them than the Moken, who do not have citizenship status. Hiring the Urak Lawoi to work in the park would not only provide them with employment and income, it could also actively engage them in conserving the local marine and forest resources.

E. Recognise Moken and Urak Lawoi Cultural Rights and Promote Traditional Ecological Knowledge as a Means for Conservation

Prior to their establishment, many of the national parks in Thailand were home to indigenous people. Creating a national policy that supports traditional culture and respects the rights of indigenous people, especially in marine protected areas, is an essential basis to support conservation and the cultural rights of indigenous people. In the context of this study, recognising the Urak Lawoi as the first inhabitants of the Adang Archipelago and the Moken as frequent indigenous inhabitants of the Surin Islands are important steps in asserting the cultural rights of these people. Further acknowledgement of Moken and Urak Lawoi cultural rights could be accomplished by recognizing and promoting existing indigenous place names for local features and locations.

Moken guides and visitors along the nature-culture trail

Protected area managers must be able to incorporate the knowledge and practices of indigenous inhabitants into the management plans and implementation strategies of protected areas. Local Moken and Urak Lawoi must be involved in park decision-making processes and could enhance their ability to contribute to park management plans if they were trained as field researchers. Because of the local knowledge and personal connections in the community, they are able to gather more detailed information from relevant sources than external researchers. Underwater change resulting from the Indian Ocean tsunami and global warming makes a complete survey of the marine resources of both the Surin Islands and Adang Archipelago urgent and essential. Undertaking such a survey would provide a good opportunity to recruit Moken and Urak Lawoi to participate in and enrich the survey with their local knowledge.

The issue of community and cultural rights needs to be reconsidered before the future promotion of tourist activities. Tourist activities can have a profound affect on local communities, and it is imperative for the Surin Islands and Tarutao marine parks to develop an educational programme to raise the awareness and sensitivity of tourists before they visit the Moken or Urak Lawoi communities. Other impact mitigation measures could include limits on the number, duration or location of visits; requirements to have a Moken or Urak Lawoi tour guide accompany visitors to the communities; or an entrance fee to support conservation activities. At present, the Surin Islands National Marine Park prohibits tourists from staying overnight in the Moken village, except for researchers who receive official permission from the Department of National Parks, Wildlife and Plant Conservation. This is a wise practice, as the Park is better able to limit and control the impact from tourists.

Because there has not been a strong historical voice representing the Moken and Urak Lawoi people and their culture, they have become vulnerable to disruptive changes in their home areas. Past assistance

and support from the government has been sporadic and largely based on individual will, rather than according to a consistent plan or policy. There is a strong need to support the Moken and Urak Lawoi's representation, leadership and capacity as these factors will help them to better protect their rights. Developing institutions for such purposes will help support their cultural rights and help build cultural pride. The national marine parks should develop policies for incorporating cultural considerations into management plans.

If the parks are unable to increase the number of staff, it is recommended that, where possible, the park superintendents and their staff spend time living with the indigenous communities to enhance their understanding of the Moken and Urak Lawoi cultures and livelihoods. To make joint conservation efforts successful, protected area managers must become more aware of the socio-economic and cultural conditions of these indigenous communities.

Although Thailand has successfully increased the number and geographic coverage of its protected areas, most management mechanisms governing the national parks do not adequately support quality management, enhanced public awareness of natural resource conservation, or stakeholder participation in natural resource management. The interests of indigenous communities like the Moken and the Urak Lawoi are often neglected in protected areas, and these communities are often blamed for using and destroying their surrounding natural resources. However, indigenous communities are very knowledgeable about their surrounding environment and are, thus, particularly well-equipped to be strong partners in conservation.

This study has provided current socio-economic data about the Moken and Urak Lawoi populations of the Surin Islands and Adang Archipelago, respectively. It has also provided insights into their way of life and their relationship with the surrounding environment. This information will assist decision-makers, planners and park managers to identify opportunities and challenges for managing the natural resources of the Surin Islands and Adang Archipelago. It will aid them in creating culturally-appropriate conservation programmes that can ensure future generations' ability to enjoy the natural and cultural treasures contained within these protected areas.

Preparing sea cucumbers

Appendices

Appendix 1: Socio-Economic Issues Recorded during the Study

Socio-economic Issue	Implications on Quality of Life in the Community and Protected Area Management
Population, household, age, sex and average family size	Increasing population will affect quality of life and the health of local natural resources. This issue will have to be considered along with the level of resource use, settlement dispersion, gender and age balance.
Percentage of population with Thai nationality and identity card (for the Moken of the Surin Islands)	Having Thai nationality and an identity card is important for the protection of indigenous rights. An identity card enables legal employment and entitles protection of rights under the Thai Labor Act. At the time of the study, over 100 Surin Moken did not have Thai nationality or an identity card.
Mobility, migration and community security	Mobility and migration are part of the traditional lifestyle of the Moken and Urak Lawoi communities. Migration alleviates the concentrated and intense use of natural resources and promotes community health and social cohesion. The impact of inter-island migration should also be considered in-depth. In the Adang-Rawi Archipelago, the influx of non-indigenous entrepreneurs may lead to development that exceeds the environment's carrying capacity. Mobility and migration must be considered along with the issues of local settlement and community rights.
Education level and literacy rates	Education enhances opportunities in many areas ranging from employment to communication and involvement in local governance. Measuring the quality of education is also important since education should aim to not only teach basic concepts, but also enhance cultural identity and pride. In protected areas, education and awareness building should also emphasise the importance of environmental conservation.
Occupation, livelihood security and dependency on natural resources	Occupational opportunities for the Moken and Urak Lawoi should strive to incorporate indigenous skills and knowledge. Employment should lead to a secured livelihood and should avoid creating further dependency on natural resources. Welfare and safety should also be considered since both the Moken and the Urak Lawoi are often exploited through employment.
Consumption patterns	This issue encompasses food security issues, consumption behaviours, dependency on non-traditional commodities and material possessions. A comparison between historic data and current data allows for the projection of future trends.
Economic conditions	Economic conditions are measured through analysing income, expenses and savings. Balanced management of household income is generally thought to sustain both the community and environment.
Traditional natural resource management methods	Local beliefs and practices, such as taboos against harvesting certain resources, promote good resource management practices. Protected area management should recognise the utility of these practices and encourage their usage.
Indigenous/local knowledge for self-sufficiency	Indigenous or local knowledge is instrumental in supporting community self-sufficiency. Monitoring and evaluating the existence and utilisation of this knowledge is essential.

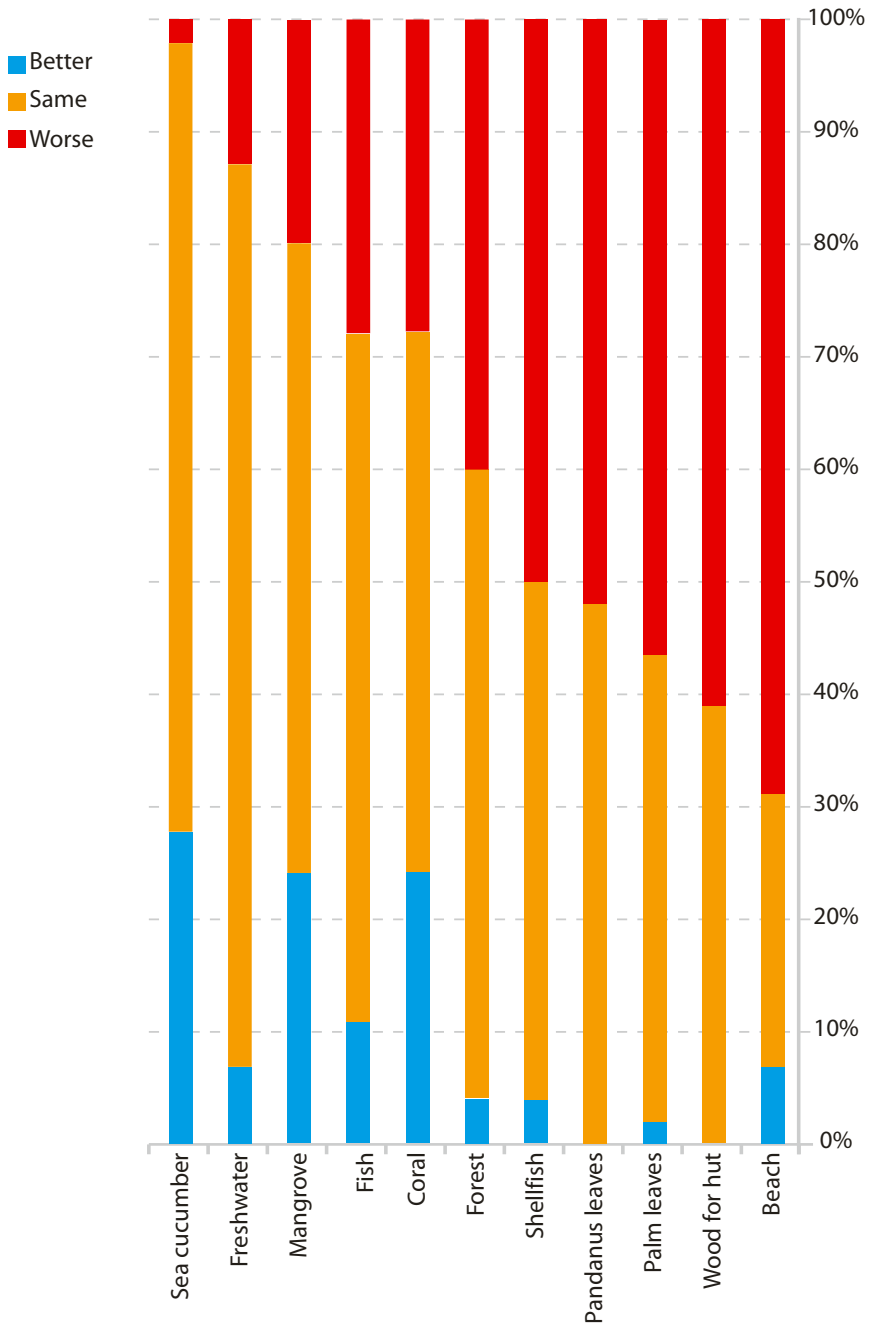
Socio-economic Issue	Implications on Quality of Life in the Community and Protected Area Management
Future aspirations	Future aspirations include issues such as occupation, residence and general well-being. It also reflects the level of attachment to the place, the need for security in the future and expectations surrounding change and transformation. This issue is important to protected area management due to the need for balance between community aspirations for 'progress and prosperity' and environmental conservation.
Infrastructure and public services	Infrastructure, utilities and public services are often viewed as quality of life indicators. In protected areas, infrastructure development must be carefully planned and controlled. Government agencies, local administrative offices and community-based organisations should work together to establish regulations and guidelines to promote sustainable development.
Mode of production, goods, services, activities and land area or marine area used	Data on mode of production, goods, services, activities and land area or marine area used will enable protected area managers to monitor resource use patterns.
Markets for products/ goods and services	The data on markets and consumers of products/goods or services from protected areas highlights the needs and expectations of a group of stakeholders who are often overlooked.
Non-market value of resources	This issue focuses on the abstract value of place and resources, especially to local communities. Cultural and spiritual valuations of natural resources are also important to consider in protected area management.
Attitudes of stakeholders towards resources and change	Attitudes of stakeholders towards resources can be an indicator of the effectiveness of management practices.
Perceptions regarding the challenges of coastal management	Monitoring perceptions provides an insight into the effort of protected area managers in dealing with problems and challenges. Focusing on common problems and challenges may bring stakeholders together to collaborate on conservation
Perceptions regarding community problems	Data that reveals perceptions of community problems helps to monitor the social conditions of communities and to develop appropriate strategies to address these issues.
Awareness of stakeholder groups about protected area rules and regulations	This indicator reflects the effectiveness of community liaisons, awareness-building, interpretive programmes and public education. High levels of understanding and awareness should be equated with high levels of compliance.
Community-based organisation and community strength	Self-organisation and self-management refers to the ability of the community to organise and to address their own problems. Such organisation facilitates protected area management and cooperation with the National Park Authority. The Urak Lawoi started to form community organisations in the mid-1990s, while the Moken, do not have any formal community organisation.
Stakeholder groups and their involvement	This indicator enables the monitoring of the effectiveness of protected area management in terms of recruiting stakeholder participation and sharing the burden of conservation work.

Appendix 2: Moken Population on the Surin Islands (1993-2005)

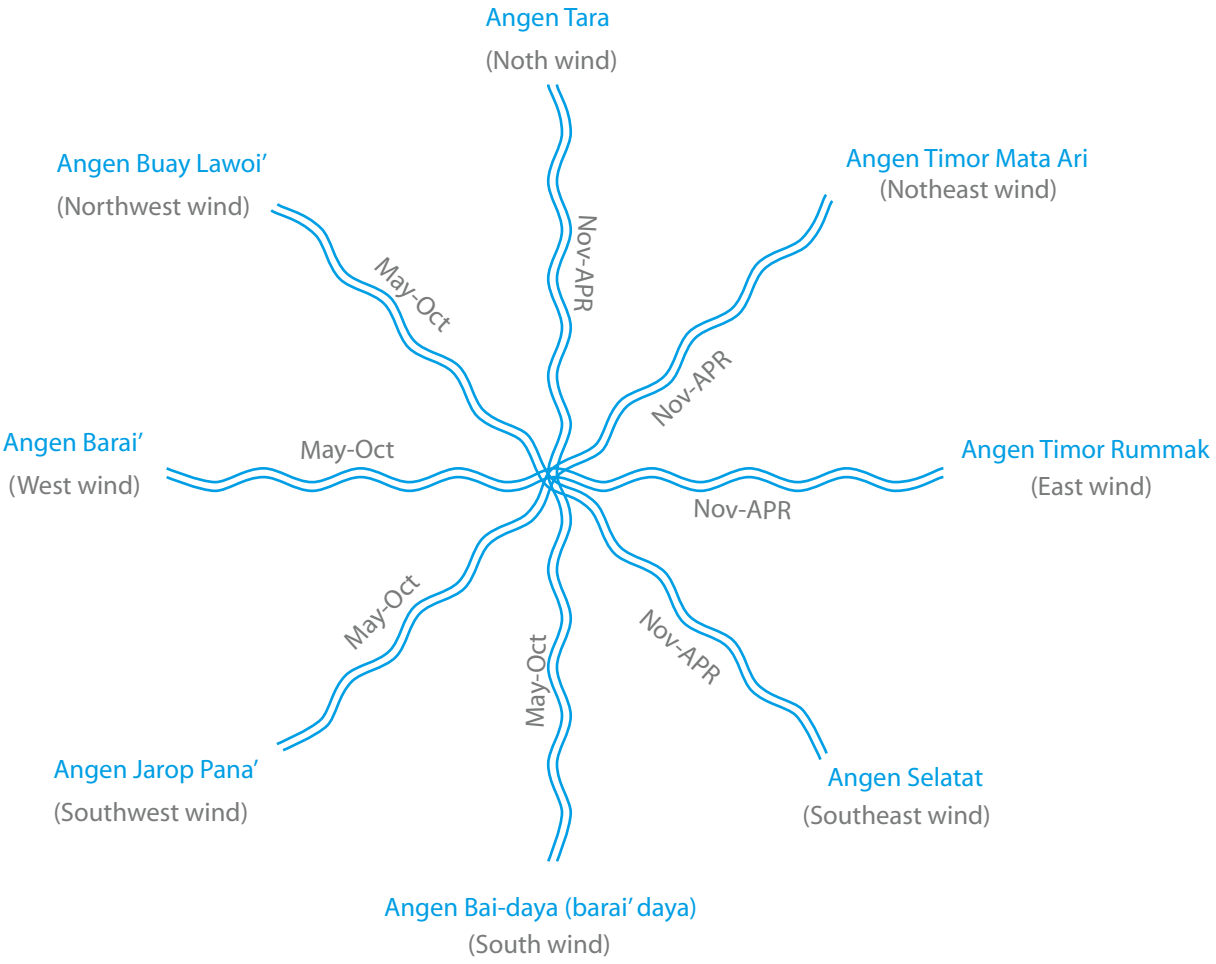
	1993	1994	1997	1998	1999	2000	2001	2002	2003	2004	2005*
Household	35	45	34	37	36	42	34	38	40	46	55
Male	65	92	57	58	56	66	55	56	68	77	101
Female	71	109	77	86	85	95	91	82	105	107	128
Total	136	201	134	144	141	162	146	138	173	184	229

*Source: The Andaman Pilot Project Survey. * Data as of May 2, 2005*

Appendix 3: Moken Perception of Natural Resource Health: A Qualitative Comparison between the Present and Past



Appendix 4: Types of Wind According to the Indigenous Knowledge of Urak Lawoi in the Adang Archipelago



Appendix 5: Recent Tourism Developments on Lipe Island

	1998	2005
Frequency of ferry service	3 times a week	more than 2 times a day
Number of resorts on Lipe	5 resorts (153 bungalows)	23 resorts (496 bungalows, row houses and 59 tents)
Number of restaurants and bars	4 restaurants no bars	more than 20 restaurants and bars
Number of people working at resorts	1 family 45 local people 5 outsiders	11 families more than 75 local people 41 outsiders

Courtesy by participant of local curriculum development meeting, Hat Yai, Thailand, October 6-7, 2005

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