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The Roles of Eco-entrepreneurs in Conserving Common Pool Resources  
-Wildlife and Natural Areas in Sipadan Island<sup>1</sup>

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**ABSTRACT**

With the Government's decision to vacate the island, Sipadan is currently undergoing the process of being gazetted as a Marine Park and later to be listed as World Heritage Site under UNESCO Man and Biosphere Programme. Public debates before the decision was incomplete. The operators were portrayed in mass media as the bad guys who exploited and destroyed Sipadan's common pool resource that is the pristine environment and its terrestrial-marine biodiversity. This oversimplified generalization underestimated one very important fact. The tour (diving) operators were also genuinely concern with what happened to the island. In fact, they had taken many drastic measures (past and present) for conservation. They have very strong incentive to do so- their business survival it at stake which is very much dependence on pristine nature and unique biodiversity of Sipadan, Mabul and Kapalai. Examples of such eco-entrepreneurs are Datuk Douglas Primus, Datuk Clement Lee, Robert Loh, Ken

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<sup>1</sup> This paper is the revised version of James M. Alin, Izyanti Awang Razli, Merylyn Anak Buncha and Ho Chong Mun (2005). "Eco-entrepreneurs of Sipadan, Mabul and Kapalai", presented at the 4<sup>th</sup> Annual Seminar on Science and Technology, 2005, School of Science and Technology, University Malaysia Sabah, 12-13 September.

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Pan, Abdillah family and others. They ventured into the business out of their passion for recreational diving as well as their deep concern for the conservation of marine marvel. But when Sipadan's fame grew, everyone tried to grab a slice of the magical islands for quick cash. So back then, operators had free rein of the island. Many firms ( some illegal operators ) operating from the neighboring islands or from Tawau, Semporna and Lahad Datu usually free ride, add to the seasonal overcrowding making enforcement of quota of visitors very difficult. No one could ask them to leave because no one had the jurisdiction to do so. The swelling visitor numbers and ensuing need for supporting facilities led to environmental strain. Sipadan was simply being loved to death or put simply, become the victim of the tragedy of a common. The government's responded by deciding to vacate the island. Six eco-entrepreneurs located on the island - Borneo Divers, Pulau Sipadan Resort, Sipadan Dive Centre, Syarikat Ramai Benar , Borneo Sea Adventures and PB Borneo Safari and Abdillah Sipadan Paradise were ordered to relocate to the neighboring islands of Mabul and Kapalai. They were not consulted, not offered any compensation and not given ample time to relocate. The reason behind the eviction was to conserve Sipadan's biodiversity. This paper is based on the benefit of hind-sight. We employed rapid appraisal techniques in examine the roles and efforts taken by the eco-entrepreneurs in the past and present towards the conservation of Sipadan (and the neighboring Mabul and Kapalai islands). Our initial findings are; (i) the divers and diving operators helped to deter illegal and destructive fish bombing; (ii) they contributed in slowing down the extinction process of endangered turtle species by pooling resources to buy turtle nests from the traditional collectors;

Keywords- eco-entrepreneurs, marine ecotourism, pristine nature, national park

## **SECTION 1**

### **1.1 INTRODUCTION<sup>3</sup>**

Though Pulau Sipadan was declared a bird sanctuary in 1993 and re-gazetted in 1963 after independence, it was never properly managed in any way. Moreover, its ownership was regularly disputed between Malaysia and Indonesia-and, to a lesser extent, The Philippines-not to mention one Malaysian who still claims the island was given to his grandfather by the Sultan of Sulu. When Malaysia gained independence, territorial

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<sup>3</sup> See Jason Isley, Simon Christopher, Simon Enderby, Matthew Oldfield and Roger Munns (2002005). *Sipadan Mabul Kapalai- Sabah's Underwater Treasure*, Kota Kinabalu: Natural History Publications (Borneo).

maps drawn up to demarcate the border between Sabah and Kalimantan contained border-lines drawn through dense rainforest with no clear landmarks; this left for interpretation by both countries. Neither country was really interested in the situation until diving at Sipadan became popular (also intense contest for mineral exploration), then territorial dispute over the islands of Ligitan and Sipadan magnified. After many attempts at a peaceful solution the dispute was referred to the International Court of Justice (ICJ) in The Hague, Netherlands in 1998. The territorial ownership disputes between Malaysia and Indonesia regarding Sipadan has always been the single fundamental issue waiting to be resolved. This question of ownership and responsibility prevented anyone at every level from making any concrete decisions with a long –term future in mind.

On Sunday, April 23, 2000, heavily armed gunmen have abducted at least 20 people, including foreign tourists, from a resort island off Malaysia's eastern Sabah state and fled by boat to Jolo. The gunmen are armed with rocket launchers and M-16 automatic rifles. While the negotiation on the hostage from Sipadan was still unfolding, Abu Sayyaf group launched another kidnapping at the Malaysian territory of Pandanan Island, on the night of September 10, 2000. Following the kidnapping incidents Sipadan Island was gazetted as Restricted Area under the *Protected Areas and Protected Places Act of 1959* (principally to protect its biodiversity) which brought Sipadan under the jurisdiction of the National Security Division (security issues).

A final verdict on 17 December 2002 regarding sovereign of Sipadan and Ligitan-both were recognized as being part of Malaysia territory. This landmark decision is therefore a monumental opportunity for Malaysia to preserve this unique treasure. In April 2004, State government has at last heeded calls for the Island to be emptied. All dive operators were ordered and given until February 2005 to vacate the island (to demolish and their premises/to remove equipments from Sipadan). The authorities say the operators can relocate to other islands and their guests (divers) can still make day trips to Sipadan. By June 2004, only two dive outfits on the island, Borneo Divers and Pulau Sipadan Resort, were able to move out to their alternative resorts nearby, in Pulau Mabul and Kapalai ( they built it long before in anticipation to eviction order). The other four-Sipadan Dive Centre, Syarikat Ramai benar, Borneo Sea Adventures and PB Borneo Safari was not able to relocate immediately due to short notice (they have invested heavy in the infrastructure on the island). Night dives would need special

permission and special guide. Until today<sup>4</sup> the island is yet to be gazetted as Marine Park (overdue August, 2005), jurisdiction still falls under National Security Department (NSD) and the six rangers stationed on the island are toothless tigers since they cannot carry out any form of enforcement (under section 48 of Sabah Parks Enactment) until it is officially gazetted. Other than present of vigilante - NSD to monitor the areas (assisted by Navy and Fishery Department) there is no concrete interim management

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<sup>4</sup> The latest development on Sipadan is described in **DAILY EXPRESS NEWS**, "Demolition of Sipadan structures bearing results" 03 March, 2006. **Kota Kinabalu**: State Secretary Datuk K.Y. Mustafa said bio-diversity rejuvenation marked by the re-growth of trees on Pulau Sipadan is a conspicuous effect of the demolition of structures on the island. He said there is also evidence to show that the number of turtle landings had increased significantly. "Statistics indicate that 502 green turtles and five leatherback turtles landed and nested on the island between April 2005 and February this year. "In the same period, 45,997 green turtle eggs and 502 leatherback turtle eggs were collected. Of the number, 17,255 green turtle eggs and 202 leatherback turtle eggs had hatched," he told Daily Express. All resort structures on Pulau Sipadan had been demolished and cleared and overnight stay for tourists is now a thing of the past. Tourists and divers are now allowed to be on the island only during the day. "Landings are limited to 120 people only per day. There is tight security with 24-hour surveillance by six men from the General Operations Force (PGA), two police personnel and 23 members of the army." Mustafa's visit to the island was part of his working visit to East Coast districts between Feb. 25 and 27. The aim was to study the current security situation on Sipadan and nearby islands and their development in terms of management by the Sabah Parks. Under Ninth Malaysia Plan, Sabah Parks will build the proposed Tourism Facility Centre for the use of tourists as well as the security forces. "When completed, it can accommodate up to 200 people a day. The facility will use a modern sewerage system whereby the wastes will be eliminated on the mainland," he said. This is in response that there were lacks of facilities for use on the island during the day following the ban on overnight stays. The State Secretary said he would be calling for a meeting to discuss the management of the island and efforts to co-ordinate the entry of tourists and divers. Mustafa also attended a security briefing on islands off Semporna by the armed forces at the Kapalai Resort. According to him, security is under control and no sea robberies have been reported of late. "This can be attributed to the presence of surveillance posts erected on several strategic islands and manned by the armed forces and General Operations Force (PGA) to prevent the infiltration of foreign immigrants from outside." available at

<http://www.dailyexpress.com.my/news.cfm?NewsID=40504>

plan for Sipadan. This tiny island is now exposed to fish bombing, cyanide fishing and illegal fishing. There are some indications that the future development of the island will follow Wood (1993) option 10.2.4 – “Remove all the existing commercial tour operators from the island and replace them with a Park Headquarters and small diving concession under Sabah Parks’ control”. Sipadan is currently undergoing the process of being gazetted as a Marine Park and later to be listed as World Heritage Site under UNESCO Man and Biosphere Program.

Public debates before the decision was incomplete. The operators were portrayed in mass media as the bad guys who exploited and destroyed Sipadan’s common pool resource that is the pristine environment and its terrestrial-marine biodiversity. This oversimplified generalization underestimated one very important fact. The tour (diving) operators were also genuinely concern with what happened to the island. In fact, they had taken many drastic measures (past and present) for conservation. They have very strong incentive to do so- their business survival it is at stake (very much dependence on pristine nature and unique biodiversity of Sipadan, Mabul and Kapalai). Examples of such eco-entrepreneurs are Datuk Douglas Primus, Datuk Clement Lee, Robert Loh, Ken Pan, Abdillah family and others. They ventured into the business out of their passion for recreational diving as well as their deep concern for the conservation of marine marvel. But when Sipadan’s fame grew, everyone tried to grab a slice of the magical islands for quick cash. So back then, operators had free rein of the island. Many firms (some illegal operators) operating from the neighboring islands or from Tawau, Semporna and Lahad Datu usually free ride, add to the seasonal overcrowding making enforcement of quota of visitors very difficult. No one could ask them to leave because no one had the jurisdiction to do so. The swelling visitor numbers and ensuing need for supporting facilities led to environmental strain. Sipadan was simply being loved to death or put simply, become the victim of the tragedy of a common. The government’s responded by deciding to vacate the island. Six eco-entrepreneurs located on the island - Borneo Divers, Pulau Sipadan Resort, Sipadan Dive Centre, Syarikat Ramai Benar , Borneo Sea Adventures and PB Borneo Safari and Abdillah Sipadan Paradise were ordered to relocate to the neighboring islands of Mabul and Kapalai. They were not consulted, not offered any compensation and not given ample time to relocate. The reason behind the eviction was to conserve Sipadan’s biodiversity.

## 1.2 OBJECTIVES, DATA AND METHODOLOGY

With the benefit of hindsight, we examined the collective actions- past and present – of the eco-entrepreneurs toward the conservation of Sipadan by theoretical modeling (see section 3.1). Our work shed some lights on the following issues;

- (i) To what extent they contributed in slowing down the extinction process of endangered turtle species by pooling resources to buy turtle nests from the traditional collectors?
- (ii) To what extent divers and diving operators deter illegal and destructive fish bombing?

The data derived from the Joint Affidavit<sup>5</sup> was calibrated with the data gathered using qualitative technique of rapid appraisal/ authors' personal observation conducted in Sipadan, Mabul, Kapalai during many occasions throughout 1996 -2004. It was also calibrated with the (ii) transcript of lecture by Datuk Douglas (2005)/ 2 interviews with him, (iii) Many informal interviews with local scuba divers (some parts of my interview with Mr Robert Loh of SMART was off the record) and Japanese scuba divers who regularly dived at Sipadan, Mabul and Kapalai (Keiko-san and Hiromi-san in Yokohama, sometimes between 2000 – 2002). **The main aim of this research is NOT to exonerate any of the eco- entrepreneurs' wrongdoings nor is it an attempt to defend their behavior.**

## 1.3 SIPADAN'S ECO-ENTREPRENEURS

The history of diving operations on the island<sup>6</sup> can be summarized as follows. Borneo Divers and Sea Sports-Mr (now Datuk) Clement Lee- was the first to set up diving operations on the island in 1984 with structures/buildings, equipments and providing services to cater for divers/tourists staying overnight<sup>7</sup>. Up to 1987, this was a ferry-based operation, with accommodation provided in the form of tents and freshwater supply brought over from mainland. Pulau Sipadan Resort & Tours-Mr Ken Chung set up operation on the island in 1990, followed by Sipadan Dive Centre Sdn Bhd- Managing Director is Datuk Douglas C. Primus / GM- Wembly Magindol in 1991,

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<sup>5</sup> Joint Affidavit in Support of Douglas C.Primus Sikayun, Abdillah bin Abdul Hamid, Goh Sing Zin and Wilfred Lingham, Application for Judicial Review number K25-08 of 2004 (as well as inter-partes application for extension of time), submitted to The High Court in Sabah and Sarawak at Kota Kinabalu, vol. 1 & 2 dated 28 May 2004;

<sup>6</sup> Affidavit in Support,p.5

<sup>7</sup> The full history of Borneo Divers operation in Sipadan is described in Jack Jackson (. 2002). Globetrotter Dive Guide- Malaysia, London: New Holland Publishers.

Syarikat Ramai Benar Sdn Bhd (wholly owns Abdillah Sipadan Paradise- Director – Mr. Abdillah bin Abdul Hamid/ GM- Mr Chang Chi Min) ---in 1994; Borneo Sea Adventure Sdn Bhd- Director- Mr. David Goh Sing Zin also in 1994 and PB Borneo Safaris Sdn Bhd- Director- Datuk Wilfred Lingham/ Mr Lawrence Som in 1996. We called them eco-entrepreneurs because of reasons mentioned in our introduction. For the purpose of our analysis eco-entrepreneur<sup>8</sup> is defined as an agent of change, innovative, able to identify profitable economic opportunities, taking calculated risk and able to harmonize the economy and ecology of the planet.

In 1991, the six eco-entrepreneurs formed a consortium (jointly fund coalition). The member of the consortium are; Abdillah Sipadan Paradise; Borneo Divers Sdn Bhd; Pulau Sipadan Resort ; Sipadan Dive Centre; Sipadan Lodge (Borneo Sea Adventures) and Pulau Bajau (administered by Borneo Divers). In effect, the consortium of dive operators has agreed to undertake a proactive course to combine their resources under one administrative umbrella in order to not only address BKN (National Security Bureau) concerns and directives but to also transform Sipadan into a world class ecotourism destination. The consortium members elected Datuk Clement Lee as their first chairman of Sipadan-Borneo Resort Management Sdn Bhd. There are also eco-entrepreneurs operating outside of the Island. Two are operating on the neighboring Island of Mabul that is Sipadan Mabul Resort (SMART)/Explore Asia Tours –Mr Robert Loh and Sipadan Water Village Resort- Mr Douglas Leong. In Kapalai Island (only 15 minutes from Sipadan) there is Sipadan- Kapalai Dive Resort-owned by Pulau Sipadan Resort Off the island. The rest of operators are based in Semporna – Pasir Pandanan- Semporna Island resort as an example.

Little is known about the early history of Sipadan. However, from the 1930s until it appears that the only people to visit regularly were fishermen and turtle egg collectors. In the 1970s (and possibly at other times) security forces camped on the island. As far as is known, the first building to be erected on Sipadan was a rest house, built when the island was designated a Bird Sanctuary in 1933. It has been used by the turtle egg collectors for many years and has been rebuilt at least once. In 1980s it was closer to the beach. The house is surrounded by a small coconut plantation and there is a tended

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<sup>8</sup> The term eco-entrepreneur is derived from *ecological entrepreneurs* (Davis (2003) or *nature's entrepreneurs* (Terry & Donald, 1998) or *green entrepreneurs* ( Volery, 2000) cited in Jess Vun W.T., and Jane Chang, Y.C (2005). Ecopreneurship for SMEs: direction for international competitive edge, working paper presented at *The Seminar on the future directions of SMEs*, organized by Centre for Entrepreneurship research and Development, University Malaysia Sabah, Kota Kinabalu, 8 July.

grave, containing the remains of someone from Pulau Mabul<sup>9</sup>.

In 1985 a company called Borneo Divers began to bring visitors to dive, initially using tents for accommodation, but having huts in operation by 1989. Pulau Sipadan Resort set up their operation in 1990 and Sipadan Dive centre in 1991. The Sabah Wildlife Department established a base on the island in 1989, see Wood (1992, p.6). Scuba diving for pleasure began in Sabah in about 1980, principally around Kota Kinabalu. However, it was not long before other areas were being visited, including Sipadan. Borneo Divers first began to run camping trips to the island in 1983, initially bringing all gear from Kota Kinabalu, subsequently from Semporna. News of the spectacular nature of the Sipadan reef spread and it was featured increasingly in dive magazines throughout the world. The dive operation proved a success and in 1989 Borneo Divers began to put up accommodation huts. In 1992, BD caters for a maximum of 40 divers. A second operation, Pulau Sipadan Resort, was started in 1990 and can accommodate about 30 people. A proportion of the clients are divers, but others come to the resort to snorkel and enjoy the island. The next development was the establishment of the Sipadan Dive Centre in 1991, which caters mostly for divers and has accommodation for over 30 people<sup>10</sup>.

### **3.2 ECO- ENTREPRENEURS AND TURTLE CONSERVATION**

For many generations the maritime societies put high value on turtle eggs. To them, the eggs had a cultural significant (gift in wedding/ religious ritual). They also consume turtle eggs; in fact it was their source of protein long before Sulu Zone and colonial era. Perhaps large scale egg collection started after Sulu Sultanate emerged as commercial centre. The magnitude of the collection was intensified during colonial. During this era, these traditional subsistence societies was already marginalized, forced to live at the periphery and stigmatized as gypsies of the seas, nomad and pirate. Perhaps their behavior evolved with turtle eggs trading skills as part of their strategy of survival. Recognizing the potential profits of the trade, the Sulu Sultanate (thus reinforce their hegemonic rule) regulated the trade by assigning sole property right of collecting eggs

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<sup>9</sup> Elizabeth Wood, David George, Frances Dipper, David Lane and Christopher Wood (1992). Pulau Sipadan: Meeting the Challenge of Conservation, WWW Project Number MYS 233/92, p. 77 and p. 88.

<sup>10</sup> Citing Wood (1992, p. 72)



at different location to different families. With strict enforce and severe punishment (in the form of norms, sanction etc) inter and intra communities it actually solved the open access issue. The eggs were no longer “almost free (for all)”.

The second state intervention in turtle eggs trade was when British North Borneo Chartered Company endorsed the traditional arrangement in 1914. The notice declared as follow, Monopoly rights to collect turtle eggs in Sipadan Turtle Collecting License, Ordinance XXX of 1914-

*“ Panglima Busari and Maharajah Anggai of Dinawan( Danawan?) Island are hereby licensed under the above Ordinance to collect Turtle Eggs from Sipadan Island from 1<sup>st</sup> January, 1916 to 1<sup>st</sup> January, 1921 subject to the following conditions; In the case of the death of either of the license holders the rights under this license shall descend to his heir. The license shall be renewed to the license holders at the end of the stipulated period for a further period of five years provided the license holders have committed no breach of the Ordinance or have not in any way rendered themselves unworthy of the privilege. This license may be cancelled at any time by the Governor on the recommendation of the Resident of the East Coast.*

*(Approved by Acting Resident of the East Cost/Governor)<sup>11</sup>,*

Granting the monopoly implied private property rights which are usually exclusive and transferable. In private property regime, the rights to exclude others from using the resource and to regulate the use of it are vested in an individual (or group/firm/in this case turtle egg collectors). That is only true, if the condition of high ability and technology to enforce is being fulfilled, otherwise the egg will once again become open access. The difficulty of enforcing private claims to common property resources is exacerbated by competing claims to communal rights in those resources. These conditions essentially cursed the turtles to the state of near extinction. Furthermore, privatization usually provides incentives for rational exploitation of the resource. If the owner has property rights in the resource and those rights are tradeable, both the costs and benefits will accrue to the same owner and will be reflected in the market price of the resource, giving the owner the pecuniary incentive. These incentives, however, are not necessarily consistent with sustainable use—it may be economically optimal to deplete the resource rather than to use it sustainably.

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<sup>11</sup> cited in Nik Annuar Nik Mahmud (2003). *Pulau Sipadan dan Ligitan: Isu Sempadan dan Kedaulatan*, Bangi: Penerbitan Universiti Kebangsaan Malaysia, appendix 17, p.150.

The most important BNBC attempts to control the burgeoning turtle egg trade is in 1917 legislation of Turtle Preservation Ordinance. This Ordinance applied until 1950s (at least) and it was replaced with Fauna Conservation 1963 (Act no.11) which was partially protects the chelonids turtles and prohibits national and international trade of sea turtles. The Fauna Conservation (Turtle Farms) Regulations 1964 regulates the taking of green and hawksbill turtle eggs for hatchery purposes. The import and export of turtles or its products is prohibited by Customs (Prohibition of Imports) and (Prohibition of Exports) (Amendment) Order 1971. Malaysia became a party to CITES effective 19 January 1978; hence the import and export of sea turtles, their products and parts are strictly prohibited. With a heavy legal protection and all out reinforcement by the modern state, artificial shortage of the turtle eggs was created. If the taste for turtle eggs is an acquired one (socially constructed?) then the quantity demanded might be constant or increasing. The unintended consequence is higher market price. High price indeed is the strongest incentive for smuggling of eggs from the neighboring country of Philippines<sup>12</sup>. It is also an effective signal

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<sup>12</sup> Refer to JENNE LAJIUN and MOHD ZAFRIN NORDIN, "TURTLE EGGS POSER" New Sabah Times, 12 Oct 2005 available at <http://www.jphpk.gov.my/English/Oct05%2014k.htm>

The government's fight to stop the sales of turtle eggs in local markets has been dampened by neighboring countries which allow turtle eggs trade. Many of the eggs are in fact being brought in by the neighbors thus causing the government having a hard time in curbing the sale of the eggs. Assistant Tourism, Culture and Environment Minister Datuk Karim Bujang said that the authorities who stopped these egg distributors were often told that the turtle eggs were from their home country which allowed them to consume and sell. "However it will not be the excuse that the authorities will buy as the State prohibits the sale and distribution of turtle eggs whether the eggs are from another country," he told reporters here yesterday after opening the Ramadan bazaar at Asia City here. "There is no way we are going to legalize the sale of turtle eggs," he said adding that the public must not condone such acts committed by others including by illegal immigrants who are known to be turtle eggs retailers. He said that if the buying stops, more turtles would be alive. He also commended the departments in charge of protecting the marine wildlife, such as the Department of Wildlife. "They are doing their best. I have no cause to complain," he said. However, he said, the public cannot leave the job of protecting the turtles solely on the shoulders of the wildlife department. "We need the support of the public...if you see someone eating turtle meat or eggs, report it to the authorities," he said. Meanwhile Tawau marine police yesterday seized 2,900 turtle eggs which are believed to be on the way to a

for the wholesaler with the exclusive “traditional rights” to collect every single egg hatches. Another source of supply shock was the total prohibition of turtle eggs collection from Selingan Island, when it was gazetted as Turtle Islands Park in 1977<sup>13</sup>.

Since then almost every clutch laid is harvested for a Malay<sup>14</sup> family claims to have been given the rights to the eggs by the Sultan of Sulu, 200 years ago. Eggs harvest has been intense since at least 1950, and since 1970 there has been a significant decline in the numbers turtles coming to nest. Unless egg harvest is stopped soon, the nesting population is doomed to extinction, and with it will go most of the turtles now seen in the waters offshore. During the period 26 October to 1 November 1990, an average of 5.7 green turtle egg clutches were laid per day (range= 4 to 10). If the pattern of the nesting season at Pulau Sipadan is the same as that at Sabah’s Turtle Island Park, by extrapolation, the number of eggs clutches laid during the year would be estimated 1,360-1740 eggs<sup>15</sup>. During interviews carried out by Madeleine Piper of the

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neighboring country. The consignment was about to be loaded onboard a vessel for Indonesia when they were seized by marine personnel patrolling at Batu near the Sabindo seafront. District marine police chief DSP Paul Kheu Khon Chiang said the consignment was found in a box at about noon. However the personnel did not arrest anyone as they believed the suspects must have fled upon seeing the personnel. DSP Paul said that they believed the eggs came from Sandakan and were transported by road to Tawau.

<sup>13</sup> The first in a chain of small islands that stretch across the Sulu Sea to the Philippines, Selingan, Gulisan, and Bakkungan Kechil -these are Sabah’s Turtle Islands, separated from the Philippine border and the larger Philippine island of Bakkungan Besar by more than a narrow stretch of water-the route of barter traders from ancient times and still the haunt of modern day pirates. Turtle eggs have been collected from the islands since before the colonial days. Though over-harvesting was already leading to a decline in egg production even then, it was not until 1971 that the turtles were given any form of legal protection, when the island was designated as a Bird and Game Sanctuary, administered by the Forestry Department. In 1977 the islands, together with the surrounding seas, were handed over to the Sabah Park Trustees and the Turtle Islands Park came into being. See Anthea Phillipps (1988). *A Guide to the Parks of Sabah*, Sabah Parks Publication no.9, Kota Kinabalu: Sabah Parks Trustee, pp.44-45.

<sup>14</sup> The traditional egg collectors are not really Malay (although they are Muslim). Most likely they are of Bajau-Sulug ethnic.

<sup>15</sup> See Jeanne A. Mortimer (1991). Recommendation for the Management of the marine turtle

Sabah Museum in 1980, Haji Abdul Majid, a resident of Pulau Danawan was staying on Sipadan and gave an account of his involvement with the island. He explained that Danawan had been given to his ancestors 3 generations ago by the Sultan of Sulu (Philippines) for cultivation. The people sent back produce to the Sultan and at some stage began to exploit Sipadan for its turtle eggs. Haji Abdul Majid claimed to have been coming to Sipadan since 1923, staying on the island for two or three months at a time, in rotation with other people from Pulau Danawan<sup>16</sup> although the time when egg collection began is different. In a television interview (2 series of Majalah Tiga TV3 –interviews by Wan Zaleha Radzi), a Malay man (now living in Semporna) whose family was given collecting rights, claims to have collecting eggs since 1950 (rather than 1923). The eggs are sold in neighboring towns such as Semporna and Tawau<sup>17</sup>.

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populations of Pulau Sipadan, Sabah, Kuala Lumpur: WWF Malaysia Project 3868.

<sup>16</sup>Wood, E.M. cited her own earlier work, Wood (ed) 1981.*Semporna Marine Park Survey: Expedition report and recommendations*. WWF Project MAL/34 Kuala Lumpur: WWF Malaysia p.71.

<sup>17</sup> See Wood (1992). Mortimer (1991, p.11-12; p.15 ) reported on harvest of Turtle eggs as follows; A Malay man who resides in Semporna states that 200 years ago his family was given the rights to collect turtle eggs on the island by the Sultan of Sulu of the Philippines (interview, TV3). He claims to have been collecting eggs there since 1950. Nowadays he hires younger men to reside on the island and harvest virtually every egg clutch that is laid. The eggs are carried by boat to Semporna from where they are transported to neighboring towns and sold in food markets, where the man reportedly gets RM 0.50 per egg. Some turtle eggs are also served on the premises of the Sipadan Island Resort. In an interview with TV3, the egg collector reported that between 1950 and 1970 about 30-40 female turtles nested per night during the peak season. After 1970, however, there was a decline in the numbers of nesting turtles. The egg collector attributes the decline to disturbance caused by the activities of the scuba divers and visitors at the island. Considering that Borneo Divers strictly forbids its clients to interfere with the turtles when diving it with turtles when diving. It is unlikely that the underwater activities of the divers are entirely responsible for the decline in nesting. Possibly, the bright lights at the north end of the island that are visible at night both on the beach and from the sea cause some of the decline. Far more likely explanation for most of the observed decrease in nesting turtles is simply the over-harvest of eggs during the past four decades. In fact, the pattern of decline reported by the egg collector is exactly what one would predict when constructing a model that describes the effects of severe egg over-harvest. On the issue of how extinction of the nesting population will

The green turtle (*Chelonia mydas*) is the most abundant species nesting at Pulau Sipadan. The hawksbill turtle (*Eretmochelys imbricate*) was reported<sup>18</sup> to nest in low numbers and the olive ridley (*Lepidochelys olivacea*) may also nest very rarely. According to the licensed egg collector, the numbers of nesting turtles have declined significantly during the past 45 years. Adult turtles return to nest on the beach which they left as hatchlings. Collection of turtle eggs from a discrete site such as Sipadan is therefore a potential disaster because it can result in the eventual extermination of the population. Figures provided by Sabah Wildlife Department reveal that during the peak month (November) only 152 nests were recorded for 1990 and 200 for 1991. This makes an average of around 6 nests per night in the peak month, about one sixth of the totals reported 20-30 years ago. Before 1963 the Wildlife Department lacks legal authority to prevent egg collection because Sipadan was reserved in 1933 under the Land Ordinance “for the purpose of bird sanctuary’ specifically to protect the migratory Nicobar pigeons. This means that statutory authority to control activities on Sipadan lies with the Director of Lands and Surveys, not the Wildlife Department. Several agencies share authority to control activities in the sea, including the Marine Department and

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impact Sipadan?, she wrote, If the nesting population disappears, so too will the wonderful spectacle of so many adult green turtles in the sea that helps to make diving at Sipadan such an extraordinary experience. The population of adult turtles one sees in the water is not separate from that on Sipadan’s nesting beaches. Before it is too late, every effort should be made to halt the harvest of eggs for human consumption. Ideally, the island will soon become a Marine Park and at the time the harvest of eggs would be prohibited. In the meantime, however—especially if marine Park status is unlikely to be achieved in the near future—the authorities should consider ways to provide adequate protection for the turtle eggs. One possible way might be to use the Wildlife Department (which is responsible for the bird sanctuary) as an agent. Perhaps after financially compensating the egg collector, the Wildlife Department could be given rights to the eggs.

<sup>18</sup> State Government of Sabah, Taman-Taman Sabah (May 1990). “ *Assessment of Development Impacts on Pulau Sipadan*”, final report prepared by Universiti Kebangsaan Malaysia, Kampus Sabah, Kota Kinabalu, cited in Mortimer 1991. UKM (1990) p.37 reported that, only very recently has the Wildlife Department started to reserve some of the nests for hatching. The rest (70%) are still harvested by legal egg collectors who have been given the rights on the basis that they were the first inhabitants of the island.

Department of Fisheries.

The level of exploitation was unsustainable and the breeding population was declining. The three dive operators decided to buy and protect nests of any turtles that lay in the areas in which they operate. The proportion of hatchling: number of eggs laid is still very low (2% in 1990; 9% in 1991). The rate for each nest was fixed at RM50 (on the assumption that there is an average of 100 eggs per nest, at 50 cents each). The Wildlife Department, since they began operating on the island in December 1989, has come to an arrangement with the egg collectors whereby they keep one nest per night (regardless of the total number dug)<sup>19</sup>. The Sipadan Dive Centre Sdn Bhd, Borneo Divers and PSR had entered into an agreement on the 4<sup>th</sup> November 1993 with the turtle collectors on the island, which lasted from 1993 to 1997. Under the agreement, it was provided, inter alia, that in consideration of an annual payment of RM50, 000.00 the turtle eggs were allowed to hatch undisturbed under the supervision of the Wildlife Department. The turtle collectors were also paid an Ex- Gratia Payment in the sum of RM70, 000 under an Ex-Gratia Agreement dated 4<sup>th</sup> November 1993. The two agreements were entered into as a result of the goodwill of then Ministry of Tourism and Environmental Development. This landmark agreement was also reported in Marine Turtle Newsletter<sup>20</sup> entitled "Pact Ends Egg Collection"<sup>21</sup>.

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<sup>19</sup> The Wildlife Department did not reinforce the state laws despite the fact that the claim of customary rights was not available under Sabah or Malaysian law.

<sup>20</sup> *Pact Ends Turtle Egg Collection in Marine Turtle Newsletter* 67:29, ©1994 available online at <http://www.seaturtle.org/mtn/archives/mtn67/mtn67p29.shtml>; *Daily Express*, 5 November 1993; Sabah, Malaysia.

<sup>21</sup> Turtle egg collection at Pulau Sipadan, off Semporna [Sabah, Malaysia], has ceased following the signing of a package sales and purchase agreement today between three tour operators and two families who hold customary rights to collect turtle eggs on the island. The three tour operators [are] Borneo Divers and Sea Sports Sdn Bhd, Pulau Sipadan Resort Sdn Bhd and Sipadan Dive Centre Sdn Bhd. The two families were represented by Alukan Kaneh and 93-year-old Munting Panglima Abu Sari. Under the agreement, the three operators will pay the two families a total annual sum of 50,000 Malaysian ringgit [M\$2.60 = US\$1.00] for a period of four years after which the agreement would be reviewed. In addition, the two families were also paid an ex-gratia payment amounting to M\$70,000 today. This payment made by the three operators was in return for the families' unconditional guarantee that they would renounce any

The following is among the terms and conditions of the agreement.

Sales and Purchase Agreement<sup>22</sup> between Borneo Divers and Sea Sports Sdn.Bhd., Pulau Sipadan Resort & Tours Sdn Bhd and Sipadan Dive Centre Sdn.Bhd and Alukan bin Kaneh (Abdul Rauf bin Mahajud signed on his behalf) and Munting bin PG Abu Sari.

Item 3- this agreement shall remain in force for 4 years from the date hereof and shall not be terminated by the vendors save where the *purchasers* fail to pay the said Ringgit Malaysia Fifty Thousand (RM50, 000.00) on the due date and upon expiry of a written notice of demand of not less than 21 days.

Item 4- the next payment and subsequent payments of the said Ringgit Malaysia Fifty Thousand (RM50, 000.00) shall be paid on or before the expiry of 12 calendar months from the date hereof.

Item 5- upon the signing of this Agreement the *vendors* shall cease immediately all collection of turtle eggs on Pulau Sipadan. All eggs already collected shall be removed immediately out of Pulau Sipadan.

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claim against the operators for any compensation for loss of income due to the operators' presence on the island. [Tourism and Environmental Development Minister Datuk Tan Kit Sher] told a press conference today that in consideration of the annual M\$50,000 payment, Alukan, Munting and their families would stop collecting eggs on the island with effect from today. "The two families shall sell all the turtle eggs laid on the island to the three tour operators," he said. According to him, the tour operators would buy up the eggs but would not resell them. "The tour operators will leave the turtle eggs where they are for natural hatching," he said. He also said that Alukan, Munting and their families would continue to maintain their customary rights despite the signing of the agreement [and] to maintain the symbolic presence of the traditional egg collectors on the island, one member from each of the two families would be employed on the island ... by the three tour operators. He said that turtle egg collection at Pulau Sipadan dated back to 1878 but it was only in 1916 that the two families were bestowed customary rights to collect the eggs on the island by the British Government.

<sup>22</sup> The agreements were in English for practical reason. The copy of these contracts is attached in Affidavit in Support.

Item 6- during the currency of this Agreement the vendors, their families, employees or servants and assigns shall not collect, remove, dispose or in any manner disturb any nest or eggs laid on Pulau Sipadan.

Ex-Gratia Payment- paragraph 6- In consideration of an ex-gratia payment of Ringgit Malaysia Seventy Thousand (RM70.000.00) only paid by the First Party to Second Party (the receipt whereof the Second Party hereby acknowledge) the Second Party do hereby unconditionally covenant and warrant that they shall not pursue any claim against First Party for any compensation for loss of income due to the present of the First Party on Pulau Sipadan.

What were the implications of the arrangement? The contract was successfully reinforced during the stipulated period. The 24 hours vigilance and visible present of the Wildlife staffs, undercover police and managers of the three diving operators on the Island increased the probability of the vendors getting caught if they were to cheat. The non-cooperative game of turtle eggs appropriation has turned into cooperative because of constant communication between two parties and the most important --heavy punishment of cheating. If vendors cheat, it will nullify the contract; they get no payment and will have to work hard again. If purchaser cheat (don't pay-refer to item 4) the vendors will collect the eggs; they will justify their act as mean to survival, will accuse diving operators/ government of depriving them of the access to resources. Immediate halt of the collection caused temporary supply shock. Reduction in supply push the price of eggs at the market slightly higher thus exacerbated the shortage. High mobility within the region facilitated the smuggling of eggs to Malaysia from Philippines<sup>23</sup> or from

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<sup>23</sup> To understanding the issue of turtle eggs smuggling, we have to look at what happening in turtle islands of the Philippines. Baguan is the only island of the six Philippine Turtle Islands that is fully protected (in contrast, all three Malaysian Turtle Islands have been fully protected since 1977). Despite regulations, where "controlled" harvesting is allowed, egg collection is difficult to control on the other five, inhabited Philippine Turtle Islands. So, the future for the turtles depends ultimately on the future of Baguan Island. The turtle egg trade is an important part of the tradition for the people of Turtle Islands. Until new, [alternative sources of income](#) become available, intense egg harvesting will probably continue and the turtle population will continue to dwindle. The enhancement of the residents' present sources of income is envisioned to ease egg collection. There are a total of nine islands in TIHPA, three under the jurisdiction of Sabah Parks, and six form part of the Autonomous Region of Muslim Mindanao, Philippines. All three of



Malaysia to Indonesia. In this trade, the speculator usually get his supply directly from the collectors at lower price and sell it dear at the domestic hidden market or smuggle it (turtle eggs is the illegal goods) out of the country. He will mark up the price to profit (of course after deducting his costs-bribing at the border, risk of being rob and transportation and man-power).

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the Sabah islands (Bakkungan Kechil, Gulisaan and Selingaun) have been managed as strict nature reserves since 1977. Of the six [Philippine islands](#) ([Baguan](#), [Taganak](#), [Langaan](#), [Lihiman](#), [Boan](#) and [Great Bakkungan](#)), Baguan was declared a Marine Turtle Sanctuary in 1982, while the remaining five islands host a total human population of nearly 2,500. Most of these people are Jama Mapun, originating mainly from the Cagayan de Tawi-Tawi area, south Sulu Sea; more recently, Tausug people have arrived from the Sulu and Tawi Tawi areas, between the Sulu and Celebes Seas. Human densities (800 people /km) are four times as high on the Turtle Islands as in the rest of Philippines. Also, the intensity of turtle egg harvesting - although legally regulated - is extremely high, and overall hatchling recruitment on the five inhabited islands is low. [Most of the newly settled migrants come from within the region \(Mindanao\)](#). [Economic opportunities in Sabah, Malaysia have made the Turtle Islands an attractive transient point for these migrants](#). The Jama Mapun are more involved in farming, traditional fishing and the collection of turtle eggs while the Tausug are more adept in trade and other non-traditional economic activities like [buying of permits from authorized egg collectors](#). Almost 65% of the residents live below the national poverty level, which is set at P92, 500 (USD2, 310) per year. The majority of the local work force is under-employed or unemployed. The local economy is highly dependent on the marine resources for subsistence, with most produce marketed in nearby Sabah, Malaysia. Almost 61% of the total number of families own motorized or non-motorized boats used for fishing. Although 54% of the families engage in some form of farming, agriculture is relatively underdeveloped because of poor soil quality and the limited arable land available. All basic commodities -- including rice, the staple food -- are purchased from Sandakan, Malaysia. The regulated collection of turtle eggs is an important and traditional source of livelihood for the residents. A few traders who can enter Sabah sell turtle eggs in Sandakan. These traders market basic commodities from Sandakan to the islands and make a lucrative income from the trade. [Most of these traders own small stores from which residents can buy their basic needs](#). For this reason, the Malaysian Ringgit is the favored tender over the Philippine Peso. Also, Sabah, Malaysia is looked upon as the main source of employment. Full version of this story is available at [http://www.oneocean.org/ambassadors/track\\_a\\_turtle/denr/](http://www.oneocean.org/ambassadors/track_a_turtle/denr/)

When the agreement expired in 1997, the purchasers decided not to renew the contract<sup>24</sup>. When the incentive to cooperative disappeared, the traditional egg collectors resume their activities. The game once again reverted to the non-cooperative at Nash equilibrium. Harvesting of turtle eggs continue on Sipadan region under provisions allowed through “native rights”. Today turtle eggs can still be bought in some of Semporna, Tawau, Lahad Datu and Sandakan markets. While the selling of turtle eggs is illegal, misplaced beliefs in the powers of these eggs as aphrodisiacs keep the demand high, and with many islands around Sabah’s coastline this trade is extremely difficult to police. Expressing their concern, the consortium submitted a complete management plan which included provision on turtle and turtle eggs harvesting. In the [Eco-tourism management plan-summary \(February 2003\) prepared by Sipadan-Borneo resort Management Sdn. Bhd, item 7,p.28 issue for regulation –turtle and turtle egg harvesting, the eco-entrepreneurs suggested the following;](#)

Access to Sipadan Island for the purpose of gathering turtle eggs is primarily seasonal and should be managed, overseen by SBRM Sdn bhd with regards to accommodating over night stays within various resort facilities. This can be allotted as a room per night per seasonal basis that will allow beach access. In addition, because Sabah, Malaysia does not impose the use of TED (Turtle Escape Device) for trawler’s nets, scores of mature and juvenile turtles are also inadvertently captured and killed by trawl nets within the SIMCA region each and every year.

Action 1- draft a cooperative SBRM & Native management program for turtle egg gatherers

Action 2- draft an agreement that allows a reasonable percent of turtle to be allocated to the Sipadan Hatchery

Action 3- Assist in Government regulation/s& enforcement

Action 4- implement eco-awareness program for TED

Action 5- enforces a ban on all trawling in the Sipadan region.

## **SECTION 4**

### **ECO-ENTREPRENEURS AND ILLEGAL FISHING**

The amount of fishing that has been carried out around the island is unknown. It is

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<sup>24</sup> Special lecture delivered by Datuk Douglas Primus at the Occasional Seminar Series organized by School of Business and Economics, UMS, May 24, 2005.

however, likely to have increased in recent years, because boats with powerful engines have become more widely available. In 1980, the resident egg collectors reported that they fished the Sipadan reef and that fishermen from other islands made occasional visits. As far is known, the fishermen used small boats and fished with hook and line. The fishing communities living on other island off Semporna including Pulau Mabul earns their livelihood from the surrounding waters of Pulau Sipadan.

The Sipadan reef also has in the past been damaged by fish bombers. The presence of full-time operators on Sipadan has undoubtedly contributed, along with government efforts, to the prevention of fish bombing. The arrival of Borneo Divers both brought a halt to this practice, the reef has not suffered irreparably, and the conservation importance of the reef top (where fish bombing took place) has not been lost. In the mid 1980s, when Borneo Divers set up their permanent camp, they found that fishermen were using explosives to catch fish on shallow reefs around the island. The police assisted in bringing a halt to this practice. During UKM 1992 survey they did not see any fishing being carried out except some recent fishing line on the reef. Other than that, there was a reports on ishermen using cyanide to catch coral fish. The present of the six operators plus their overnight staying divers, the influx of day time trippers and random patrolling of the security forces<sup>25</sup> has to certain extend reduce the occurrence of the destructive fishing on the island tiny reefs. But it did not exactly make the culprit fishermen to abandon the practices entirely. They simply moved elsewhere- either to the adjacent water of Mabul, Kapalai or to the other island with shallow reefs. These realities beg an explanation different from the conventionally accepted one.

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<sup>25</sup> Boat traffic has increased dramatically since 1985. At the time there was no jetty and turtle egg collectors and visiting fishermen used small boats within a shallow draft that could be taken over the reef top on to the beach. Any large vessels (mostly police and military) had to offload into small boats if they wanted to land people on the island. Supply boats, police launches and large (up to 70 ft) passengers boat tie up to the jetty. During our 3-week survey the police launch visited 2-3 times, the Navy once, and chartered tour boats. Supply boats visit every few days and boat based in Semporna transport guests to and from Borneo Divers (owned about half out of total 12 boats) about once a week. The Indonesian Government lays claim to Sipadan and Malaysian security forces have been temporarily stationed on the island at various times, for example during the 1970s. As far as is known they camped at the Northern end of the island but did not have any permanent dwellings. The Malaysian Navy and Police still patrol the surrounding seas and call in at the island from time to time. See UKM (1990, p.72)

Among recommendations put forth in UKM (1990, p.54) was for the management policy to put significant effort to accommodate the inclusion of commercial fishing and resource harvesting. The future Pulau Sipadan Park should be managed and developed in a natural or near-natural state for the purpose of conservation and recreation but not at the expense of the local fishermen's and resources harvesters' livelihood. They also argue that the participation of fishermen from nearby islands is important for the conservation of Pulau Sipadan's unique reef information. As users of the sea, their understanding of the many functions of coral reefs, particularly as fish breeding grounds, is vital, and that destruction of coral reefs resulting from their fishing with explosives will adversely affect their own livelihood. Local fishermen must be made to realize that they not only have the right to fish and exploit the sea resources but also to bear the responsibility of protecting and maintaining the availability of these resources for the future.

The above suggestions were based on two false assumptions; firstly, the local fishermen decided to bomb and cyanide poison the fish not because they resented the exclusion by private sector (or by state if Sipadan become Marine Park) to the rights to access the natural resources. Secondly those local fishing communities are not ignorant of the consequences of their act (destructions). They (rational fool?) are using explosive and cyanide poisoning to fish because of the law of capture.

Common pool property or resources in Sipadan has two important characteristics. The first is the excludability (control of access). Physical nature of the resource is such that controlling (regulating) access by potential users may be costly (this true in our examples of migratory resources-fish-demersal or pelagic, wildlife-birds and turtles) and in the extreme, virtually impossible (large bodies of water). Second, is the subtractability (also known as rivalry), where each user is capable of subtracting from the welfare of other users. If one user harvest fish, the catch per unit of fishing effort of other declines. The implication of these characteristics is free riding problem as well as negative externalities (appropriation) problem. Both problems will deteriorate if compounded with the low enforcement capacity for assignment and the property rights. Hence, we define common pool property or resources as a class of resources for which inclusion is difficult and joint use involves subtractability (or appropriation problems).

The resources of Sipadan island which includes its natural areas and wildlife was never a

*terrae nullius*. The Sipadan which only 35 km south of Semporna town just north of the equator in the Celebes (Sulawesi) Sea and its resources were known to (exploited) the maritime society long before the invasion of colonial powers and the emergence of the modern state. The importance of Sipadan, Ligitan and the neighboring islands to the *Pelauh* is well documented in many anthropological works and in the living memory of marginalized society of *Pelauh*. These natural resources was not an open access, it was not freely available to everyone (as the colonial powers and modern state perceived it to be). Historical records also show that the property rights<sup>26</sup> were also established during maritime Sulu sultanate era. The definition of Property rights of Sulu Zone time is not exactly like what we have today. It was merely unwritten assignment from the sultanate to each *mataan* (house groups). By the delegation, *nakura luma* (house leader) would allocate the rights to access to the resources. The reinforcement of these rights (the power to exclude) is by social sanctions and norms within these closed-knitted maritime societies.

For many centuries, they practice self subsistent fishing with their sailing and other traditional technology. The Island was also use by the Irranun and the Balangingi as well as by the Bajau (Samal) Laut of Semporna, Tawau , Lahad Datu as fishing grounds, stop-over (to replenish their foods/ freshwater supply) and as shelter during bad weather. Before the establishment of modern states, some of Samal led a nomadic life by living on small *lepa-lepa* boats. There were a trans-boundry movement for fishing and collecting food from the many reefs that lie scattered between Sabah, the Philippines and Indonesia. The islanders' main occupation was reefs fisheries for daily consumption, where they normally use all the flesh from any sharks caught (unlike wasteful modern practice of shark fining). They are the ancestor of the present islanders of Mabul, Kapalai that built houses on stilts out over the shallow reef flat, (together with Suluk and few came as illegal immigrants who escaped violence of their hometowns).

Self regulating of resource use to livelihood was also practiced by these maritime societies until recent time. The same resource may alternate back and forth between communal and private control seasonally or over the long term. Sharing of catch and (pooling) revenue reduced the incentives to over fish—alarmed by the increasing

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<sup>26</sup> Interesting reading on this by Taylor, Carl N. (1930), 'The Bajaos: Children of the Sea', *The Philippines Magazine*, 27: 158-9, 176 and also Taylor, Carl (1931), 'The Sea Gypsies of Sulu', *Asia*, 31: 477-83, 534-5.

numbers of users and escalating conflicts, fishermen in Danawan, Mabul developed a system to regulate use: fishing sites were spaced sufficiently apart to avoid interference and fisherman agreed among themselves to fish in rotation to ensure equitable access to best sites, with their starting position determined by drawing lots or based on Nakura Luma (house leader) and Ba'anan / Baan (cluster)<sup>27</sup>.

Communal property regime did not last; it started to crumble after the imposition of colonial rule and war against *munduk* or *lanun* (piracy)<sup>28</sup>. The tragedy of a common occurred only after open access conditions were created, as a consequence of the destruction of existing marine tenure systems. Since 1970 there was increase in demand for fishery products- especially shark (white-tip, sandbar and leopard) for fins which is lucrative trading (export to Taiwan, Hong Kong, China and Japan)<sup>29</sup>. The traditional sea and reefs tenure system disintegrated further with the difficulty to exclude outsider fishermen (big scale fishing). The cooperative game (fishing) turned to non-cooperative with inferior Nash equilibrium. The highest payoffs (short term) for both the coastal and islander fishermen and outsider fishermen is to cheat, to maximize their catch regardless of whether the method is destructive or not.

Local maritime community was marginalized after their defeat to bigger trawl-fishing/*Muro-Ami* and inshore trawling /seine. Trawls are unselective (long-lining fleets operating far out at sea) and destructive to marine ecosystems-by catch includes unwanted species (no commercial value?) turtles, hammerhead sharks, seahorses etc. And fishermen from other neighboring areas—cyanide fishing to catch highly prized Napoleon wrasse/parrotfish (Sipadan is one of the few remaining breeding ground).

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<sup>27</sup> Clifford Sather (1997). *The Bajau Laut: Adaptation, History, and Fate in a Maritime Fishing Society of South-Eastern Sabah*, Oxford University Press. Our own informal interviews with elders of the communities in the islands and Semporna fishing villagers.

<sup>28</sup> see James Francis Warren (2002). *Iranun and Balangingi: Globalization, Maritime Raiding and the birth of ethnicity*, Singapore: Singapore University Press. Also James Francis Warren (1981). *The Sulu Zone 1768-1898: The Dynamics of External Trade, Slavery, and Ethnicity in the transformation of a Southeast Asian Maritime State*, Singapore: Singapore University Press.

<sup>29</sup> Mohamad Raduan Mohd Ariff, *Dari Pemungutan Tripang ke Penundaan Udang*, Sejarah Perkembangan Perusahaan Perikanan di Borneo Utara: 1950-1990. Also Chua, T.E. and J. A. Mathias, chapter 16 in *Coastal Resources of West Sabah*, USM Penang; Mathias, J.A. and N.P.E. Langham, Chapter 5 in *Coastal Resources of West*, USM Penang.

Thus the law of capture- If you can't beat them, joins them<sup>30</sup>. Unable to exclude was forcing them to use cyanide (high demand in live coral reefs fish for consumption/aquarium display at seafood restaurants) and explosive to blast- fishing. Since then fish bombing become a frequent occurrence on the reefs. The homemade explosive is cheaper (faster) consisting of bottled packed with fertilizer and lit fuse thrown into the water. It become rampant since as early as 1975 ---that large numbers of fish catch by explosive—were sold in markets at Kota Kinabalu, Labuan and Kudat ( Semporna and Lahad) until as late as 1985. The maritime community whose control of nearby island reefs had been removed often succumbed to the incentives of law of capture. This is one strong reason to suspect that the absence of divers and regular boat movements round the island at the moment might result in a resurgence of the fish bombing on the reefs of Sipadan.

## **INITIAL FINDINGS AND GENERAL DISCUSSION**

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<sup>30</sup> H. Scott Gordon, 1954, *The Economic Theory of Common-Property Research: The Fishery*, *Journal of Political Economy* 62:124- “There appears then, to be some truth in the conservative dictum that everybody's property is no body's property. Wealth that is free for all is valued by no one because he who foolhardily enough to wait for its proper time of use will only find that it has been taken by another...the fish in the sea are valueless to the fisherman, because there is no assurance that they will be there for him tomorrow if they are left behind today”.