THE TUN MUSTAPHA COMPLIANCE PLAN

WILDAID

METHODOLOGY

This assessment represents the work of a multi-national team and was carried out in Malaysia over an 8-week period in December 2016–February 2017. Research methods were developed and applied by WildAid in cooperation with Sabah Parks. Interviews were carried out with the following actors: Sabah Parks, Malaysian Maritime Enforcement Agency (MMEA), Department of Fisheries Sabah (DOFS), Sabah Wildlife Department (SWD), Marine Department, Marine Police, Attorney General (AG), Kudat Fishing Boat Owners Association (PPKNK), WWF-Malaysia, Kudat Turtle Conservation Society, Banggi Youth Club, Honorary Park Rangers (HPR) and Honorary Wildlife Wardens (HWW), villagers from Kudat, Batusiri, Karakit, Sibogo, Maliangin, Kaligu, Malawali, Tigabu, among others. The draft Tuna Mustapha Integrated Management Plan served as a vital source document for maps, legal analysis and socioeconomic statistics. We are especially thankful for the time, guidance and support of our colleagues at Sabah Parks.

INVESTIGATIVE LEAD AND REPORT WRITING

Marcel Bigue, *WildAid Marine Program Director*
Doug Morris, *Chairman of Global Parks*
Silvia Bor, *WildAid Marine Program Officer*

COLLABORATORS

SABAH PARKS

Dr. Jamili Nais Ph.D., *Director Sabah Parks*
Fazrullah Rizally Abd. Razak, *Senior Park Manager (REK)*
Augustine Binson, *Park Manager (TMP)*
Asdari Beluot, *Senior Park Ranger (TMP/Kudat)*
Ivycleire Edward, *Assistant Park Manager (TMP)*
Norhaslam Adin, *Assistant Park Manager (TMP)*
Surinah Sakirun, *Administrative Assistant (TTM)*
Rahim Sirukam, *Park Ranger (TMP/Kudat)*
Adam Malik Masidi, *Park Manager (ADB-RETA Coordinator)*
Zainal Jamalul, *Boatman (TMP/Kudat)*
Norjalan Chaplee, *Sailor (TMP/Kudat)*

UNITED STATES EMBASSY OF KUALA LUMPUR

Kamala S. Lakhdir, *Ambassador of the United States of America*
Frank Whitaker, *Counselor for Public Affairs and Public Diplomacy*
Michael Quinlan, *Cultural Affairs Officer*

ARAH MEKAR SDN BHD

Roger Tsui, *Technical Project Manager*

GRAPHIC DESIGNER

Hugo Ugaz

PHOTOGRAPHY

Marcel Bigue

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ACRONYMS

AG	Attorney General
AIS	Automatic Identification System
CAPEX	Capital Expenses
C&V	Control and Vigilance
DOFS	Department of Fisheries Sabah
EMS	Electronic Monitoring Systems
EEZ	Economic Exclusive Zone
ECFZ	East Coast Fishing Zone
GT	Gross Ton
HP	Horsepower
HPR	Honorary Park Rangers
HPW	Honorary Wildlife Wardens
IMO	International Maritime Organization
KPI	Key Performance Indicator
KTCS	Kudat Turtle Conservation Society
LRFT	Live Reef Fish Trade
MMA	Marine Managed Area
MMEA	Malaysian Maritime Enforcement Agency
MPA	Marine Protected Area
MYR	Malaysian Ringgit
NM	Nautical Miles
NGO	Non Governmental Organization
NTZ	No-take Zone
IMO	International Maritime Organization
OBM	Outboard Motor
OEM	Original Equipment Manufacturer
OPEX	Operating Expenses
PPKNK	Kudat Fishing Boat Owners Association
SOP	Standard Operating Protocols
SWD	Sabah Wildlife Department
TMP	Tun Mustapha Marine Park
TMO	TMP Management and Operations Office
UAV	Unmanned Aerial Vehicle
VHF	Very High Frequency
VMS	Vessel Monitoring System
WOT	Wide Open Throttle
WWF	World Wildlife Fund

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EXECUTIVE SUMMARY

The Tun Mustapha Marine Park (TMP) is home to mangrove forests, sea grass beds and coral reefs all of which serve as a critical breeding ground for resident marine species, as well as migratory species such as whale sharks. TMP waters are home to at least 82 species of hard corals, 715 species of fishes, 50 species of Opisthobranch molluscs, 25 species of Ovulidadae snails and 130 species of seaweed[1]. Given the decline in fisheries, the Sabah government recently established the TMP to reverse trends and protect territorial waters.

In this report, we analyze the legal framework, competencies and jurisdictions of all marine enforcement agencies in order to design an enforcement system for the TMP project that is practical, affordable and feasible to implement over a four-year timeframe. As the lead agency of the TMP, Sabah Parks must first strengthen its capacity and make critical investments in staff, infrastructure and training to improve communication with regional residents and ensure a presence throughout the TMP. A strong park is a respected park and a continuous presence serves as a deterrent in the long run. Our key recommendations include the establishment of a sub-station at Karakit, the design of a robust VHF marine radio network with the deployment of two patrol vessels and a live-aboard surveillance platform to provide a consistent presence and fast response capacity throughout the TMP. The Honorary Park Ranger program and existing and varied community management models should also be incorporated into the overall enforcement and compliance strategy. Select communities have already demonstrated their commitment to the vision of the TMP and must be carefully inserted into the compliance framework. As no agency can do it alone, we've also recommended the negotiation of a bilateral agreement with MMEA in order to strengthen and better coordinate surveillance and patrol efforts in the TMP. All CAPEX and OPEX decisions were made in consideration of a highly limited budget. More importantly, we have defined a blueprint of critical steps for the capacity building and professionalization of the Sabah Park Rangers, who truly are the core component of the TMP enforcement program.

1 TMP Management Plan

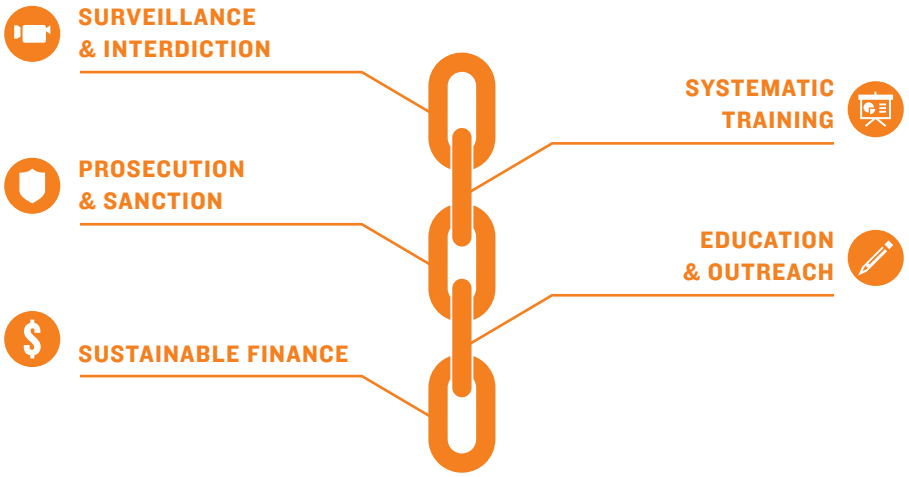
OBJECTIVES

The main objective of this report is to design a cost-effective compliance strategy for the TMP. The specific objectives are:

1. Design a practical control and vigilance system placing special emphasis on protecting preservation zones and fisheries based on interviews of local enforcement actors and communities, analysis of existing management strategies and a comprehensive site visit.
2. Prioritize a series of recommendations to optimize patrol strategies, increase compliance and improve Park Ranger safety at sea. The final recommendations will include the surveillance system design including potential co-management strategies, patrol equipment, human resource requirements and overall cost estimate.

METHODOLOGY

WildAid focuses on the law enforcement chain that encompasses the activities of detection, interdiction, prosecution and the fining of lawbreakers. An effective law enforcement system should dissuade potential lawbreakers from committing illegal activities as the consequences/risks associated with apprehension outweigh economic gain. The law enforcement chain requires that each link function in an effective manner and no one link is more important than the other. Also critical, yet not part of the enforcement chain, is the vital role that outreach and the education of stakeholders plays in marine protected area (MPA) acceptance and compliance.



We will examine all components of the law enforcement chain and provide recommendations to Sabah Parks as the lead agency in the enforcement of the TMP regulations.

SURVEILLANCE & INTERDICTION: We will examine cost effective ways to improve surveillance and interdiction. While technology can help reduce costs, a strong and clear legal framework, vessels and trained personnel on the water are needed.

SYSTEMATIC TRAINING: We will examine the key elements required to establish and sustain an effective law enforcement training program. The regulations, systems and assets are only as useful as those who are trained to operate and maintain them.

PROSECUTION & SANCTION: We will examine traditional and non-traditional strategies to enforce regulations. Bottom line: Without criminal or administrative sanctions, fishers will return tomorrow.

EDUCATION & OUTREACH: We will explore strategies to obtain stakeholder buy-in, disseminate the benefits of conservation and ensure compliance.

SUSTAINABLE FINANCE: While there is no magic formula, there is a price tag to enforcement. We aim to briefly examine who among stakeholders will ultimately contribute to the costs of enforcement.

CHARACTERISTICS OF THE TMP

LOCATION & SIZE: Tun Mustapha Park, covering approximately 8,987 km² of marine area, is located at the northern tip of Sabah, Malaysian Borneo, at the center of the coral triangle in the Sulu-Sulawesi Marine Ecoregion (SSME). The TMP encompasses three clusters of islands: the Banggi (51 islands); Balambangan (3 islands); and Malawali (7 islands). The TMP possesses an international border with the Philippines to the north and northeast, the Sulu Sea to the east and the South China Sea to the west. Importantly, the Park boundaries currently exclude all populated land areas.

BIODIVERSITY INFORMATION: The TMP is home to mangrove forests, sea grass beds and coral reefs all of which serve as a critical breeding ground for resident marine species as well as migratory species such as whale sharks. TMP waters are home to at least 82 species of hard corals, 715 species of fish, 50 species of Opisthobranch molluscs, 25 species of Ovulidadae snails and 130 species of seaweed. There are also at least 20 species of shark recorded in the TMP area, nesting sites for Hawksbill and Green sea turtles, two species of dolphins, and dugong[2].

KEY MANAGEMENT AUTHORITY: The TMP was gazetted on May 19, 2016. The Tun Mustapha Management and Operations Office (TMO) leads the development and implementation of the management plan and reports to the TMP steering committee. The TMO is housed within Sabah Parks, but can be complemented by collaboration with other government agencies and NGOs[3]. The TMP is responsible for the following issue-based management programs: 1) sustainable fisheries; 2) sustainable development; 3) eco-tourism & recreation; 4) coastal safety & security; 5) education & outreach and 6) community use zones.

IUCN CATEGORY: The TMP was designated as an International Union of Conservation of Nature (IUCN) Category VI Park. "Category VI protected areas conserve ecosystems and habitats, together with associated cultural values and traditional natural resource management systems."[4] Under this management concept, the TMP seeks a balance between sustainable use of resources and the protection of ecosystem services and biodiversity, promoting small-scale development and prohibiting industrial scale harvest.[5]

MANAGEMENT PLANNING: In collaboration with WWF, Sabah Parks has completed a draft integrated management plan for the TMP. When approved, it will be the principal guiding document for management authorities to carry out the full menu of duties required to meet park objectives, including a comprehensive education and law enforcement program. The draft Plan sets the framework and operational mechanisms by which the multiple authorities within the Park can base their decisions and actions. It also identifies basic themes of management, overall goals/strategies/actions for management over the next 10 years. The plan proposes new regulations and a zoning map (next section). This assessment of law enforcement capacity and recommendations reflects the principles, goals, and strategies set forth in the draft Management Plan.

2 TMP Management Plan
3 TMP Management Plan
4 IUCN
5 TMP Management Plan

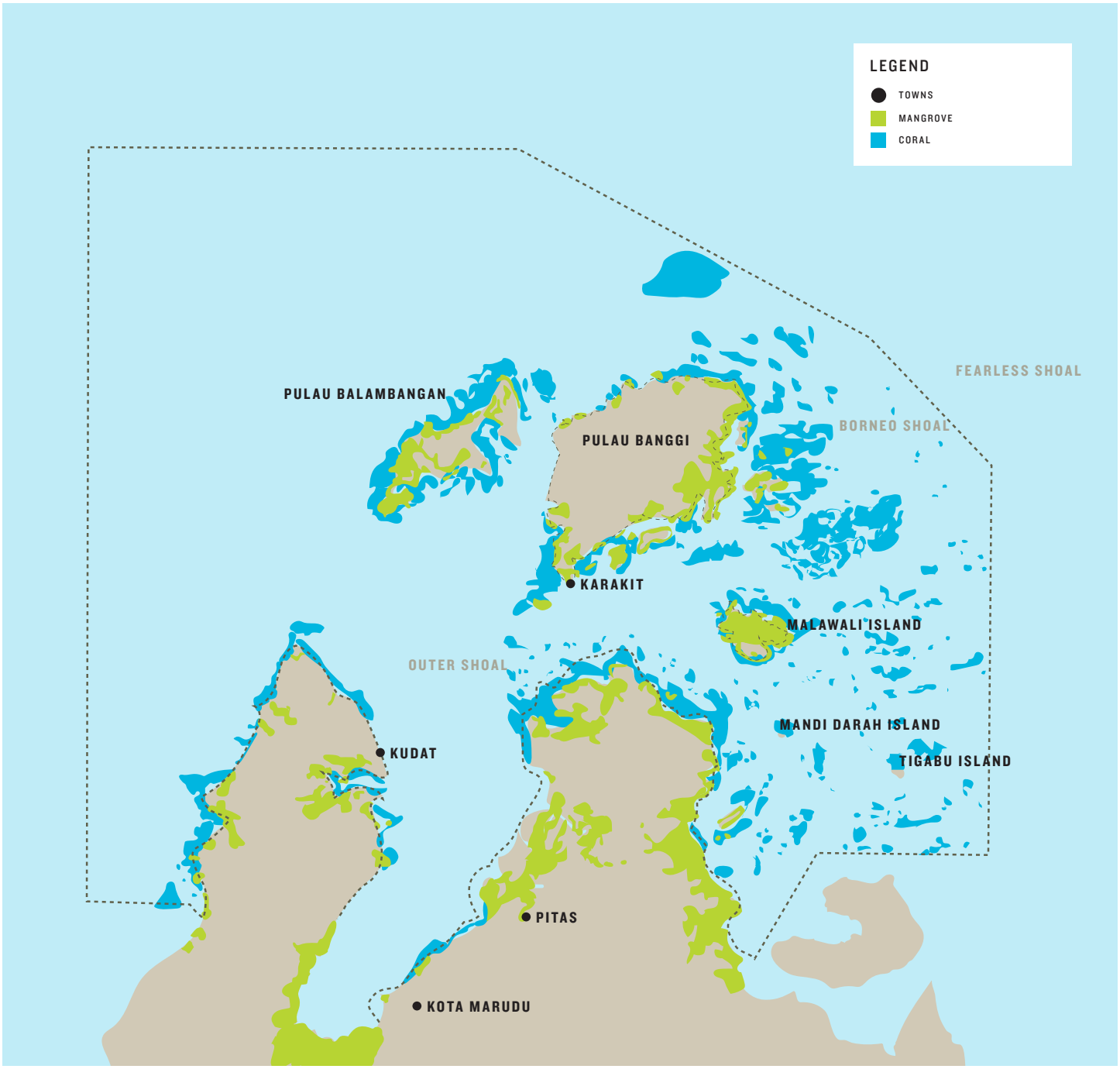


Figure No. I. Mangrove and coral distribution throughout the TMP (Source: TMP Management Plan)

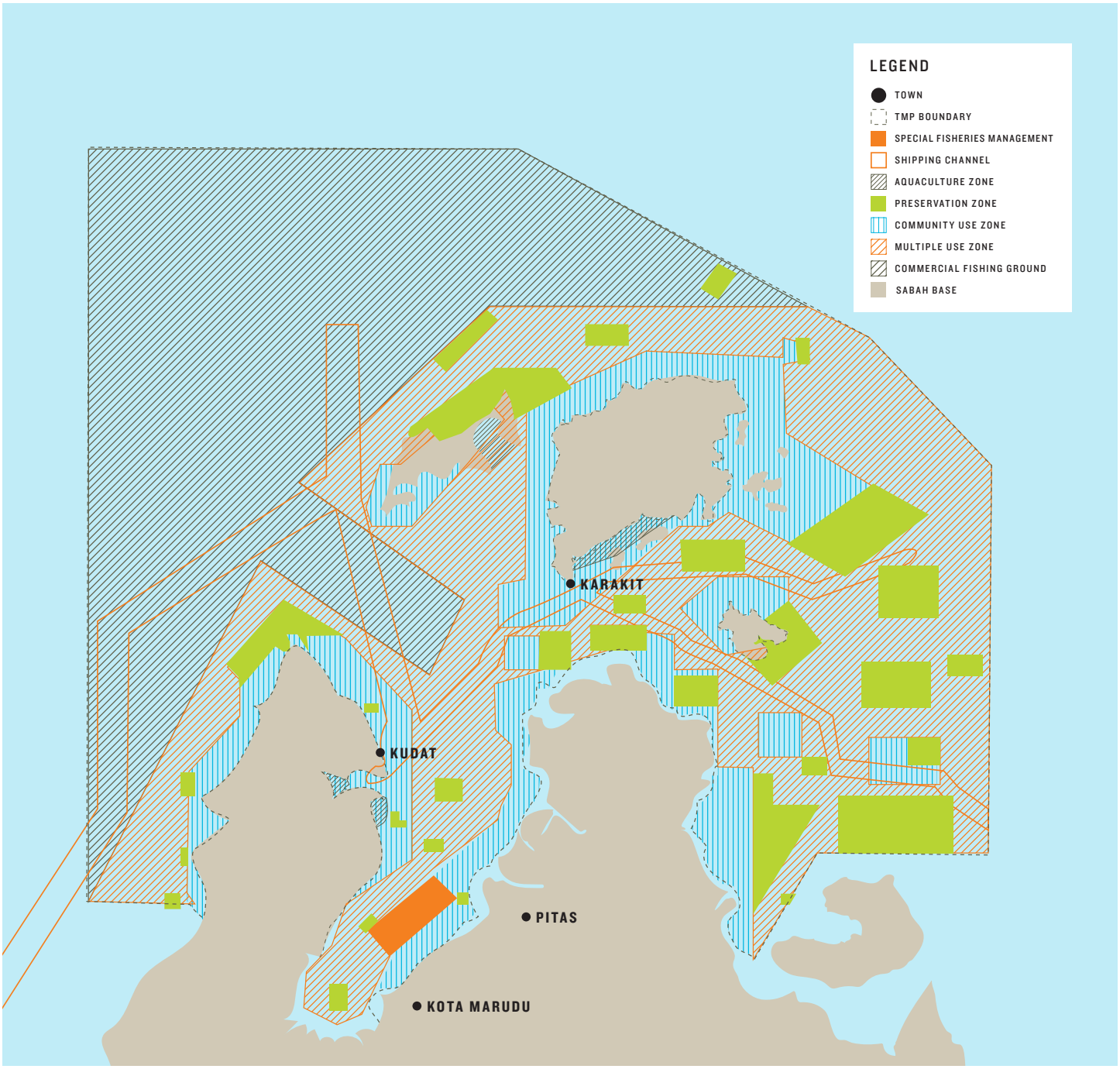


Figure No. 3. Tun Mustapha Territorial Waters and Zonification

PROTECTED AREA ZONE	MANAGEMENT OBJECTIVE	PERMITTED ACTIVITIES		RESTRICTIONS
ZONE I: PRESERVATION	1. Protect biodiversity 2. Protect fish stocks 3. Protect natural heritage	PERMIT REQUIRED • Research & investigation		• No extractive activities allowed within this zone • No anchorage • No passage of vessels larger than 45ft./25GRT
ZONE 2: COMMUNITY-USE	1. Conserve biodiversity 2. Rehabilitate damaged habitat 3. Allow participation of community in resource management 4. Allow priority for sustainable-use of natural resources by communities	NO PERMIT REQUIRED • Non-destructive traditional fishing methods • Low impact recreational activities • Passage of vessels below 15GRT	PERMIT REQUIRED • Aquaculture • Research • Photography • Dragon boats • Low impact tourism • Pontoons • Jetty construction	• Trawling • Fish corrals • Stationary lift net • Commercial fishing activities • High impact Tourism activities
ZONE 3: MULTIPLE-USE	1. Allow continuation of sustainable and low-impact resource use activities 2. Allow non-destructive and sustainable and low impact activities 3. Allow sustainable and low impact economic activities 4. Allow natural resources management	NO PERMIT REQUIRED • Non-destructive traditional fishing methods • Commercial crab fishing • Low impact recreational activities • Passage of vessels smaller than 15GRT • Passage of vessels smaller than 70 GRT • Sport fishing • Search and rescue • Animal rescue	PERMIT REQUIRED • Aquaculture • Research • Photography • Dragon boats • Power boats • Low impact tourism	• Commercial fishing activities • High impact tourism activities
ZONE 4: COMMERCIAL FISHING	1. Allow continuation of sustainable commercial fishing activities 2. Allow management of fisheries that support fish stock conservation, control of fishing effort and access to fisheries resources 3. Allow sustainable and low impact development activities 4. Allow small-scale sustainable and low impact economic activities.	NO PERMIT REQUIRED • Non-destructive traditional fishing methods • Commercial crab fishing • Passage transport vessels above 70 GRT • Parasailing • Kite surfing • Sport fishing • Search and rescue • Animal rescue	PERMIT REQUIRED • Aquaculture • Research • Photography • Dragon boats • Power boats • Low impact tourism	• High impact tourism activities

COMMUNITY, INFRASTRUCTURE AND EQUIPMENT

The TMP is home to over 80,000 people living in sixty kampungs located within three districts: Kudat, Pitas and Kota Marudu. These districts have the highest proportion of the state's poor.[6] In 2005, 86%, or approximately 6 out of 7 residents of Banggi islands earned below MYR 600 per month[7] with 70% of these earning less than MYR 350 (US$83) a month. Given proximity to the Philippines and the lack of strict border control, it is estimated that almost 17% of the island population consists of illegal immigrants.[8] Most inhabited Islands provide K-6 education and those that attend high school do so in either Karakit or Kudat. The children of illegal residents do not attend school. In total, there are 11 ethnic groups that inhabit the Islands. With respect to infrastructure,

- General Operations Forces, Army, Marine Police and MMEA posts are located throughout the TMP. See Figure 4.
- Cellular service exists throughout the TMP, but is not consistent. Most residents possess cellular phones and communicate via SMS.
- Communications towers are located at Kudat, Balambangan, Karakit, Sibogo, Malawali, Mandi Darah, and Tigabu. A Government Integrated Radio Network (GIRN) is 100% operational throughout the TMP, yet is only accessible for security forces.
- Energy: Banggi possesses a centralized diesel generator for Karakit and surrounding villages. Elsewhere, electricity is only available to those who can afford personal generators.
- Logistics: Only Banggi has ferry service twice a day to Kudat. All other Islanders travel to Kudat for supplies.
- Hospitals: Banggi and Kudat.

6 Mohamed, 2007
7 Lestari, 2007
8 Sumaila, 2007

NATURE OF THREATS AND MANAGEMENT CONCERNS		
ILLEGAL FISHING	• Fish bombing and cyanide • Trawler and purse seiner encroachment in no trawl/artisanal fish zones • Filipino, Chinese, Indonesia and Vietnamese encroachment (Live Reef Fish Trade)	• Non-selective fishing gear: long lines, small mesh size nets, and stationary lift nets • Turtle poaching
CONTRABAND	• Smuggling of fuel to Philippines	• Wildlife trafficking: turtles, shark fins, pangolins and humphead wrasse
TOURISM:	• Anchoring in sensitive areas and coral destruction	
CLIMATE CHANGE:	• Shoreline erosion are examples of impacts	
DEVELOPMENT:	• Coastal development – illegal settlements	• Sand and limestone mining
POLLUTION/CONTAMINATION:	• Pesticides and fertilizers from agriculture (palm plantations) • Plastics	• Aquaculture – grouper, shrimp and sea cucumber
INVASIVE SPECIES	• Goats, rats, dogs, mice and cats	

FISHING CHARACTERISTICS OF THE TMP

- The majority of residents are artisanal fishers who use hook and line, driftnet and traps to fish up to 3 miles from the coast mostly targeting coral reef and estuarine species.
- Most residents use pump boats for transport and fishing; however, the Sabah government aims on banning these vessels for safety reasons and also due to their use in kidnappings, bomb fishing among other border issues. The Marine Department estimates there are 5,000+ pump boat alone on Banggi.
- As of 2010, there were 113 trawlers and 18 purse seiners registered in Kudat.[9] Kudat has historically been a major fish landing port within the East Coast Fishing Zone (ECFZ).
- Target species: hairtail, mackerel, grouper, threadfin bream, bigeye, trevally, scad, ray, shark, prawn, crab, lobster and sea cucumber.
- Fishing activities are concentrated around Banggi-Balambangan, Malawali - Mandi Darah, and Banggi-Kudat. Prawn trawling activities are concentrated around Marudu Bay, Mandi Darah, and Tigabu.[10]

ORIGIN OF FOREIGN INFRACTORS AND SECURITY IN THE TMP

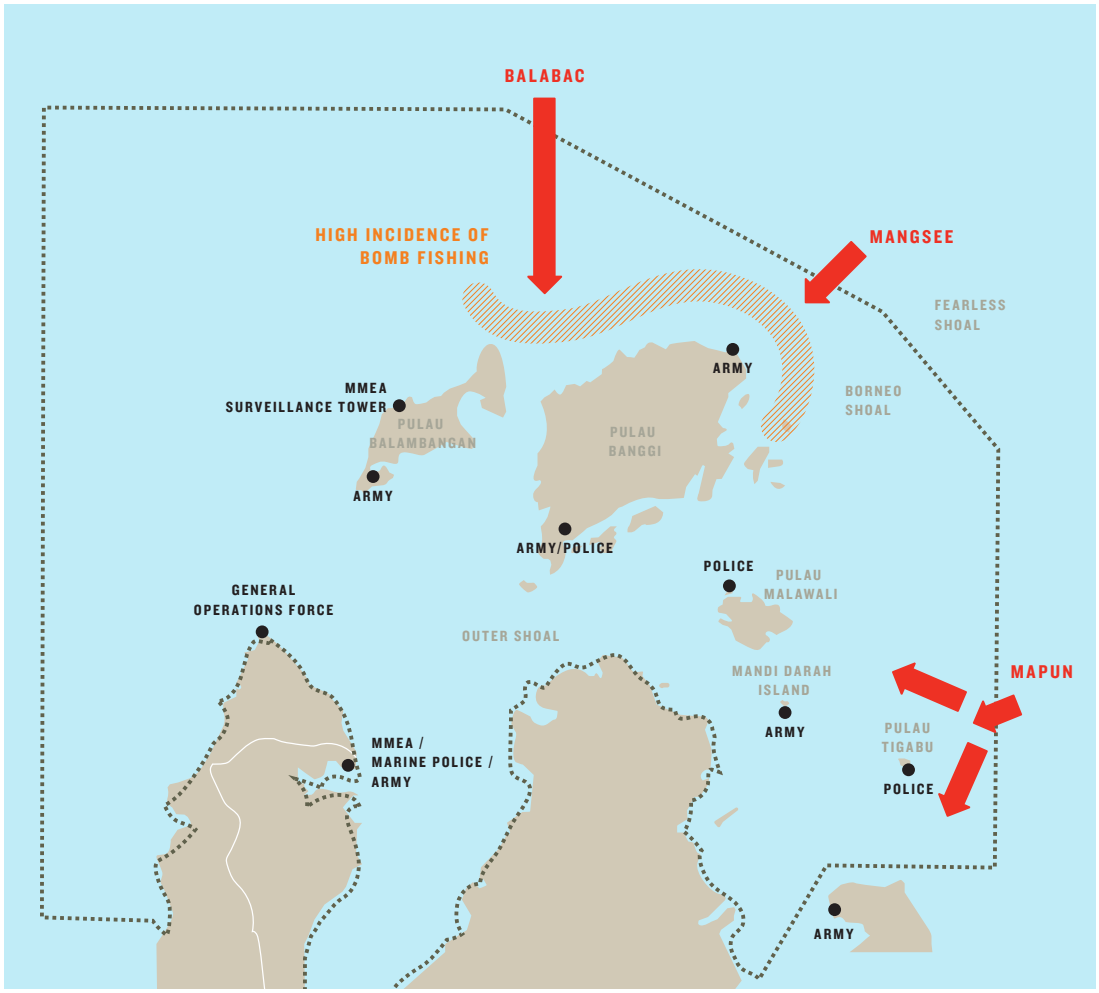
Given its proximity to the Philippines and a porous border, much of the foreign illegal fishing that takes place in the TMP can be attributed to the Philippines. As illustrated in Figure 4, fishers from Balabac, Mangsee and Mapun regularly enter the TMP using destructive fishing practices in the Eastern region and participate in fuel, gun and wildlife trafficking. Complicating matters in recent years, there has been a series of kidnappings, piracy and armed standoffs between Malaysian security forces and Filipino migrants claiming ancestral rights to the area. The TMP has serious security issues and select agencies currently enforce a 5PM-7AM curfew in the Eastern region of the Park. As many of the infractors use pump boats, Sabah politicians now want to ban them in all of Malaysia and some are also calling for the elimination of floating villages, which are common throughout the TMP. This will be difficult to carry out as many claim that this will severely compromise the lifestyle of the Bajau people who currently reside within the TMP.

TOURISM

Currently tourism is limited within the TMP although substantial potential does exist. Beyond Kudat, which has several hotels and two golf courses, tourists can participate in ecotourism/homestays with families in Banggi, Maliangin or Berungus. In Banggi, there is a new 10-room hotel adjacent to the municipal wharf. On Maliangin Island, a Chinese investor opened a 10-cabin resort in 2015 that offers scuba courses and diving at 11 sites. So far, marketing and visitation to this exclusive resort has been limited to Chinese tourists; however, plans are underway to expand marketing and encourage visitors from elsewhere. Importantly, the Maliangin Resort employs 17 local residents from Banggi. Sabah Parks does not currently receive any entrance fees or other financial benefits from this new resort.

9 Poh, 2012
10 WWF

Figure No. 4. Origin of foreign threats and distribution of security posts throughout the TMP.



LEGAL AND INSTITUTIONAL CONTEXT ANALYSIS

In order to design the TMP compliance strategy, we first examined the legal framework and looked into the key responsibilities of various actors involved in maritime enforcement. A clear understanding of the legal framework is critical for identifying jurisdictions and competencies so that our recommendations take into account all possible scenarios. As most federal and state institutions possess limited resources, we also aim to identify possible inter-institutional mechanisms to fill gaps and strengthen compliance. Sabah possesses numerous laws and a complex regulatory framework, which delegates responsibilities to a number of agencies for their execution. For brevity, we only highlight the following laws and their relevance to enforcement of maritime regulations and the role of agencies as determined by constitutional law[11].

11 Fortunately much of this information was found in the draft TMP management plan.

RELEVANT TMP LAWS

LAW	DETAIL	
SABAH PARKS ENACTMENT (1984)	This State Enactment is the vehicle by which TMP is being designated a Park by State law. Under this Enactment, the State Assembly may establish parks, streamline the control, management and administration of parks and redefine the boundaries of Parks. It is through this legislation that management, monitoring and enforcement within the Park can be delegated to the TMP management authority. This enactment provides an avenue for local community involvement in Park management through the designation of Honorary Park Rangers (Part II, Subsection 8.2.4.1). This Enactment also allows for the collection of monies for use and penalties within Parks, and the reinvestment of these back to the management of Parks.	
FISHERIES ACT (1985)	This Federal Act relates to the conservation, management and development of sustainable fisheries. Implemented in Sabah by the Department of Fisheries Sabah (DOFS), the Act principally manages fisheries through the licensing of all fishing vessels and gear. However, Part XI of the Act which allows for the development and implementation of regulations allows for the development of effective fisheries management strategies within the Park: (e) to provide for the licensing, regulation and management of any particular fishery; (f) to establish closed seasons in respect of specific fishery areas or in respect of specified species of fish, or specified methods of fishing; (g) to prescribe limitations on the quantity, size and weight of fish caught and retained or traded; (h) to prescribe minimum mesh sizes of nets; (i) to specify prohibited fishing areas for all fish or certain species of fish or methods of fishing; (k) to prescribe methods of fishing or fishing appliances;	(l) to prescribe any species of fish; (s) to prescribe the conditions of and procedures of applications for any authorizations, permits, licenses, certificates or other documents required under this Act, their form and the amount of fees, deposits and securities payable therefore; (t) to provide for and improve the collection of statistics and to require any person engaged in fishing, marketing, processing or aquaculture to supply such information as may be required; (u) to organize and regulate fishing as a sport; (af) to prescribe regulations for the control of endangered species of fish (Part XI). Furthermore, the Act prescribes the prohibition of destructive fishing methods, the need and conditions surrounding the licensing of shipment and transshipment of fish and fish products, and the licensing and practice of aquaculture activities. This Act also allows for the conditions for safe passage of foreign fishing vessels.
WILDLIFE CONSERVATION ENACTMENT (1997)	Implemented by the Sabah Wildlife Department, this State Enactment controls the hunting, trade, farming and other indirect exploitation of wildlife within the State. Within TMP, this Enactment is especially relevant as it prescribes the protection of non fish aquatic wildlife. It provides total protection to some species, and manages the exploitation of other species, which include marine mammals, sea turtle, crocodile and sea bird species, which may be present in TMP. This Enactment also allows for the delegation of the enforcement duties to Honorary Wildlife Wardens. It should be noted that appointment of Honorary Wildlife Wardens under this law is not the same as appointment of Honorary Park Rangers set forth in the Sabah Parks Enactment. Currently, individuals so appointed cannot serve as both Honorary Wildlife Wardens and Honorary Park Rangers	
SABAH BIODIVERSITY ENACTMENT (2000)	Relevant to research activities carried out within TMP, this Enactment empowers the Sabah Biodiversity Council (to which the Director of Sabah Parks is a member) to issue research permits and access licenses related to scientific research conducted in Sabah.	
MALAYSIAN MARITIME ENFORCEMENT AGENCY ACT 633 (2004)	This act established the Malaysian Maritime Enforcement Agency to perform enforcement functions for ensuring the safety and security of the Malaysia Maritime Zone with a view to the protection of maritime and other national interests in that zone. It came into force on 15 February 2005. 6. Functions of the Agency (a) to enforce law and order under any federal law; (b) to prevent and suppress the commission of an offence; (f) to provide platform and support services to any relevant agency; 7. Powers of the Agency (a) to receive and consider any report of the commission of an offence; (b) to stop, enter, board, inspect and search any place, structure, vessel or aircraft and to detain any vessel or aircraft;	(c) to demand the production of any license, permit, record, certificate or any other document and to inspect such license, permit, record, certificate or other document or make copies of or take extracts from such license, permit, record, certificate or other document; (e) to exercise the right of hot pursuit (f) to examine and seize any fish, articles, device, goods, vessel, aircraft, or any other relating to any offence which has been committed or it has reason to believe has been committed; (h) to arrest any person whom it has reason to believe has committed an offence. Notwithstanding any written law, for the purposes of subsection (5), the following activities shall be considered to be prejudicial to the peace, good order and security of Malaysia: (h) any act of pollution; (i) any fishing activities; (j) the carrying out of unauthorized research or survey activities.

This legal review reveals that inter-institutional agreements among the federal and state government agencies are crucial and needed to protect fisheries and people within TMP. We concluded that MMEA and DOFS, especially, should be considered as potential partners for Sabah Parks as they design and implement their compliance strategy. In the next section, we aim to gauge their capacity and whether the political will exists for cooperation.

PUBLIC SECTOR ACTORS

GOVERNMENT AGENCY	COMPETENCY	PHYSICAL PRESENCE	SCOPE OF ACTIVITIES	BUDGET, PERSONNEL & INFRASTRUCTURE	OBSERVATIONS
SABAH PARKS (STATE)	1. Conserve marine biodiversity and protect threatened marine species; 2. Enable sustainable development of traditional and commercial fisheries; 3. Alleviate poverty of coastal villagers. Rangers do not currently possess power of arrest, authority to write citations, and cannot carry firearms.	HQ in Kota Kinabalu and office in Kudat since 2012.	1. Fisheries management; 2. Marine habitat protection through collaborative management; 3. Shoreline management and control of land-based pollution; 4. Livelihoods and enterprise management; 5. Education and awareness.	1,322,000 MYR Budget. 12 staff: Four based in HQ and eight in Kudat (Currently only two park rangers & one boat captain). Two additional staff are funded by the Asian Development Bank (ADB). Sabah Parks will soon hire a Park Manager and will transfer 15 employees from other park areas to the TMP in 2017. There is a new office in Kudat with seven workstations and one 36ft. patrol vessel with one 200HP and one 225HP 4-stroke Yamaha outboard motors. There are plans to establish a sub-station in Karakit and purchase an additional patrol vessel. Currently, there is no VHF marine radio network, and cellular phones used for communication are not reliable in many areas. One set of binoculars, one camera and one GPS unit are provided to park rangers. Two types of uniforms have been designed for Sabah park rangers, one for office and a different one for fieldwork. Patrols are carried out three times a week and are often carried out in coordination with Honorary Park Rangers. Rangers coordinate with Village Chiefs to make presence known and also coordinate patrol positions with MMEA for security purposes. Park rangers do not yet have authority to enforce park regulations. In collaboration with WWF, efforts are underway to modify current legal enactments to provide such authority.	The boundaries of TMP include only the waters surrounding the islands and mainland; Sabah Parks currently has no jurisdiction on land.
MALAYSIAN MARITIME ENFORCEMENT AGENCY (FEDERAL)	1. Enforcement of National Security; 2. Fishery Enforcement; 3. Immigration & Customs; 4. Deep Sea Search and Rescue. Officers bear firearms and possess power of arrest. Jurisdiction: Coastline - 200 NM.	Assets divided into 5 regions, 18 districts. There are 10 Bases, 7 posts and 2 air bases. HQ in Sabah with satellite office in Kudat.	1. Enforce federal law; 2. Search and rescue; 3. Air and coastal surveillance; 4. Maritime security and safety; 5. Preventing piracy; 6. Illegal immigration	Kudat district possesses 60 officers, 3 patrol vessels, and vigilance tower on Balambangan island with radar (48 NM coverage), AIS base station and long range (25km) camera. VHF, UHF and HF communications systems as part of Government Integrated Radio Network (GIRN), which Sabah Parks cannot access. Training: 9-month academy for officers combining law, defense and physical components. Officer rotation: 3 years.	MMEA officially created in March 2006. Western Sabah priorities: Stop illegal narcotics, illegal immigration, invasion of oil rigs and fish bombing. Eastern Sabah: Royal Sulu Force invasion, piracy, kidnapping, fish bombing and smuggling activities. 333 total arrests in 2016 through November. Note: MMEA is not military.
DEPARTMENT OF FISHERY SABAH (DOFS) (FEDERAL)	1. Management of sustainable fisheries and aquaculture; 2. Enforcement of fisheries regulations both within and outside of the TMP.	HQ in Kota Kinabalu, office in Kudat and sub-office in Banggi.	1. License fishing gear; 2) Regulate aquaculture; 3) Implement state subsidy programs for fishers: boats, motors, fishing gear, cages as well as subsidized fuel. $.60 less a gallon (Reference: $1.95)	8 staff in the TMP: three are inspectors and five admin. One office in Kudat and sub office in Banggi. Fisheries inspectors have power of arrest and can bear firearms. DOFS possesses two catamaran patrol vessels. 1,069 trawlers and 390 purse seiners are registered in Sabah. DOFS licenses fishing gear to 13,329 fishers: permits are renewed annually and vary according to vessel size. Vessels x > 15GT are registered with fisheries and vessels x < 15GT are registered with the port captain and MMEA. DOFS deploys VMS transceivers aboard 52 deep-sea fishing vessels. Service provided by ORBCOMM with control center in Kuala Lumpur and data sharing with office in Kota Kinabalu. DOFS also is investigating technologies for artisanal fishers.	Registered violations in Kudat for 2016: 1 bombing case and 13 trawlers encroaching in community areas. Potential for collaboration with Sabah Parks to share VMS data for commercial vessels operating within the TMP. Primary concern is conflicts between commercial and artisanal fishers within the TMP.
SABAH WILDLIFE DEPARTMENT (SWD) (STATE)	1. Enforcement of species specific regulations; 2. Operation of wildlife refuges and zoos.	HQ in Kota Kinabalu with 10 sub offices located throughout Sabah.	1. Investigate wildlife crimes; 2. Anti poaching activities. 3. Education and outreach.	$18M MYR annual budget. 50 total staff for Sabah: neither officers nor offices in Kudat. Wardens have power of arrest and can bear firearms. Limited training budget of $70K MYR. Five vessels for river patrols, no VHF radios or official communication system. Outreach activities limited in 2016; however, key staff (1) returning in 2017 from maternity leave. Priorities: elephants, pangolin, crocodiles, macaws, and leaf monkey.	Only agency able to deputize a member of the public as Honorary Wildlife Warden (HWW). Initiated in 2002, 800 individuals deputized; however an estimated 650 are active. HWW possess power of arrest. Ten registered violations for 2016.

GOVERNMENT AGENCY	COMPETENCY	PHYSICAL PRESENCE	SCOPE OF ACTIVITIES	BUDGET, PERSONNEL & INFRASTRUCTURE	OBSERVATIONS
DEPARTMENT OF MARINE - SABAH BRANCH (FEDERAL)	1. Regulation of matters relating to shipping, training, certification and examination of seafarers and safety of navigation in Malaysian waters. 2. Ensure safe and secure shipping, protect the marine environment and facilitate sea-borne trade.	HQ in Kota Kinabalu with one sub office in Kudat.	1. Registration and licensing of all vessels in Sabah; 2. Safety inspection of vessels; 3. Definition and demarcation of shipping lanes; 4. Installation and maintenance of buoys and beacons.	Kudat branch office with10 staff and one small patrol vessel. Marine Department is responsible for all vessels irrespective of size while state port authority is responsible for all vessels below 15GT. Deep sea fishing vessels and gear are licensed by DOFS. Licenses are renewed annually. As an IMO signatory, the Marine Department monitors AIS on all vessels above 300GT; however, marine officers note they are in discussions to include smaller vessels.	While Marine Department does share vessel registry information with other agencies, a specific agreement should be negotiated with Sabah Parks. Currently no pump boats are registered. Sabah state is planning to ban the use of pump boats.
DEPARTMENT OF MARINE POLICE (DIVISION OF ROYAL MALAYSIAN POLICE) (FEDERAL)	1. Maintain law and order; 2. Coordinate search and rescue in the Malaysian maritime zone and on the high seas.	Based at Sandakan, Sabah with sub office in Kudat.	1. Enforce federal law; 2. Search and rescue; 3. Security; 4. Enforce fisheries law.	30 staff in Kudat. Officers have power of arrest and bear firearms. 5 vessels for patrols: One PA Class and 4 smaller vessels with 350HP outboard motors. Officers undergo 9-month police academy training & 1-2 month basic marine training. Maritime patrols carried out daily. ESSCOM designates patrol areas and occasional joint patrols with MMEA and Navy.	The Marine Police serves under the control of the Malaysian Internal Security Department and Public Order with the role of safeguarding the security of Malaysian waters from any threats. Currently, they are enforcing a curfew in Eastern TMP from 7PM - 5AM.
ATTORNEY GENERAL (AG) (STATE)	Enforcement of state level infractions.	HQ in Kota Kinabalu	1. Enforce state laws	5 attorneys in Kota Kinabalu. The AG prosecutes only state laws and may assist state agencies in criminal cases. Most state agencies possess in-house prosecuting officers. Sabah Parks possesses four Prosecuting Officers (POs).	Federal agencies i.e. MMEA and DOFS possess their own POs.

In summary, there are a number of agencies that have clear jurisdictions and competencies within the TMP; however, given varying resource levels, some are better-suited to be effective partners for Sabah Parks than others. For example, the DOFS only possesses three inspectors for the entire TMP despite the importance of fisheries in the region and the sheer volume of vessels and fishers. On the other hand, the MMEA is markedly better equipped and funded than the DOFS and possesses 60 staff, a few patrol vessels and state of the art surveillance capacity at Balambangan island. By virtue of its assets, the MMEA has the capacity to provide much needed security to Sabah Park Rangers on joint patrols as they have solid training, excellent equipment, and the authority to bear firearms. The Marine Police could also provide security support to Sabah Park Rangers in known dangerous areas up to 3NM from the coast. The Department of Marine could also be helpful for vessel registration, as they already possess a database, which is updated annually. As pump boats are not legal, there are thousands of unregistered boats in the TMP and the Department of Marine is not likely to attempt registry any time soon. Typically, in many countries, a vessel registry is required to ensure control of all vessels and seafarers, especially if a collaborative monitoring system such as Automatic Identification System (AIS) were to be deployed to improve vessel traffic monitoring. Vessel registration is currently assigned to the Department of Marine while enforcement of fishing gear registration is carried out by DOFS. At a minimum, the Department of Marine should mandate that all vessels clearly paint their boat registry number in plain view for identification purposes and they should address the pump boat issue as the number of illegal fishers using these small vessels is only growing. Finally, it appears the AG has a limited role in the prosecution of environmental cases as most federal and state agencies possess their respective prosecuting officers (POs). Regardless, the AG could train Sabah Park POs and provide guidance into the elaboration of regulations and citation documents.

NGO AND COMMUNITY ORGANIZATIONS

ACTOR (PRIVATE SECTOR)	PHYSICAL PRESENCE IN THE MPA. MEANS, INFRASTRUCTURE, PERSONNEL	ACTIVITY WITHIN THE MPA	OBSERVATIONS
WWF - MALAYSIA	Based in Kota Kinabalu with an office in Kudat. One 26ft. Boat with two 115HP 4-stroke Yamaha outboard motors. Six staff in Kudat. Working with six community groups: Balambangan, Maliangin, Banggi, Berungus,Tigabu and Taritipan.	1. Support for TMP management and operation; 2. Sustainable financing; 3. Community empowerment, capacity building and awareness building. WWF has been critical in the elaboration of the TMP management plan.	Since 2003, WWF has worked closely with Sabah Parks to explain, engage and build long-term relationships with many villagers to convince them of the benefits of the TMP. WWF has been a pioneer working with community groups and fostering community marine management strategies. WWF is currently working on the final version of the TMP management plan; and development of rules, regulations and fee systems as well as language providing needed authority for park rangers to enforce emerging regulations.

ACTOR (PRIVATE SECTOR)	PHYSICAL PRESENCE IN THE MPA. MEANS, INFRASTRUCTURE, PERSONNEL	ACTIVITY WITHIN THE MPA	OBSERVATIONS
KUDAT TURTLE CONSERVATION SOCIETY	Based in Kudat. Founded in 2011; six active staff (one on payroll) and 100 members. Currently working in four villages near Kudat with plans for 20 in 2017. No vessels.	1. Focus on awareness activities such as beach clean up and waste management; 2. Working with locals to carry out beach patrols and hatchery for turtle eggs; 3. Livelihood programs - ecotourism.	Members report commercial encroachment and bomb fishing to authorities, yet authorities were slow to respond. No seizures for 2015-2016 period. Small percentage of fishers use bombs in Kudat area as more difficult to obtain materials in the West. Eastern TMP bomb fishing is more common; authorities and village chiefs complicit. Sea gypsies supply villages with materials for bombs.
KUDAT FISHING BOAT OWNERS ASSOCIATION (PPKNK)	Association formed in 2007 to represent commercial fishing interests in Kudat. 30 members representing 120+ 20 - 40GT vessels: trawlers, long liners, and purse seiners. One-time 30 RM membership fee, no additional dues. Discussions held regarding the use of AIS; however, not currently mandated. In curfew zones. ESSCOM mandates use of AIS. Commercial fishers register gear with DOFS and vessel with Marine Department.	1. Commercial fishing; 2. Support the TMP as fish catch is declining and they see the need for stronger fisheries management. However, not in agreement with zonification, mainly because western zone proposed for deep sea fishing is only accessible April to June due to high winds the rest of the year.	Fisher fuel subsidy: 1.65 MYR per liter vs. 2.10 MYR. 80% of catch is sold in domestic market with 20% to China and Singapore. Key fisheries: barracuda, mackerel and tiger shrimp. Crew primarily Chinese and Filipino. They claim there are 5,000 pump boats in Banggi alone. They report bomb fishing to the north and east of Banggi. Vietnamese vessels target area specifically for turtles.
MALIANGIN ISLAND COMMUNITY ASSOCIATION (MICA)	There are an estimated 150 members. WWF donated equipment, a small boat and outboard motor for patrols as well as capacity building workshops.	1. Development of alternative livelihood activities; 2. Enforcement activities within the Maliangin Sanctuary; 3. Outreach to local tourism operators as well.	MICA coordinates with BYC to patrol the community managed Maliangin sanctuary.
BANGGI YOUTH CLUB (BYC)	There are an estimated 150 volunteer members throughout Banggi (25 active). They possess an environmental education center, dive gear, GPS, camera, binoculars among other equipment.	1. Educational and awareness activities; 2. Coral reef restoration; 3. Patrol activities.	In 2015, the BYC carried out 83 patrols and deterred eight trawlers from fishing in the community zone. The BYC currently rents a patrol boat when funding is available. BYC receives funding from WWF and the UNDP Small Grants Programme. Currently, they have no operating funds and need 40,000 MYR per annum to carry out patrol activities.
BERUNGUS COMMUNITY	The Berungus community has been successfully conducting anti fish bombing enforcement and monitoring their own resources since 2003. The village consists of 60 residents with 6-7 fishers carrying out regular patrols. They possess a camera, boat and outboard motor for patrols. There are 1,000 ha. of marine managed area with 70 ha. as no take.	1. Collaborative surveillance, monitoring and enforcement activities of the reefs around their village.	The community is active in deterring illegal fishing. They have faced repeated threats from bomb and cyanide fishers. WWF has provided fuel and surveillance equipment; however, funding remains a problem.
HONORARY PARK RANGERS (HPR) AND HONORARY WILDLIFE WARDENS (HWW)	Volunteers for enforcing TMP and wildlife regulations. They possess power of arrest; however, only as last resort measure. 13 Honorary marine park rangers were formed and trained in the TMP in March 2016. 1st Phase: all in Kudat and Banggi. 2-year contract; compulsory monthly check-in with Sabah Parks. Wildlife Wardens are present on Maliangin, Berungus and Tigabu islands.	1. Education and outreach; 2) Patrolling and informing authorities of suspicious/ illegal activities. They both carry out patrols using their own boats while fishing as well as participate in patrols with Sabah park staff.	Marine Park Rangers are created via Sabah Parks while Wildlife Rangers via the Department of Wildlife Sabah. Most HWW receive subsidies from the state. Those interviewed state that agency (MMEA) response time is slow. They have received direct threats from illegals and even had bombs thrown at them. They estimate 30% bomb fish and there is a serious artisanal-commercial fishing conflict. In the past, fishers have cut trawler lines, thrown hammers and shot at trawlers.

As the TMP promotes collaborative management and local community involvement, we interviewed select non-profit organizations and community associations to understand their role and activities as well as gauge capacity that can be incorporated into the compliance plan. It is clear that the BYC, MICA and Berungus community-led marine management efforts have had positive results, which bode well for scaling and replication throughout the TMP. These three communities have been able to change their fishing practices, enforce their own nearby marine areas and create awareness among others to stop destructive practices. This bottom up strategy will be a critical component to the success of the TMP over the long term although replication in the East may be more challenging given the prevalence of illegal immigrants and security issues. The Honorary Park Ranger (HPR) program administered by Sabah Parks, also holds great potential in fostering compliance and expanding the sphere of influence of Sabah Parks. There are currently 13 HPRs, but Sabah Parks plans to expand that number to 40 individuals. Last, but not least, WWF – Malaysia has done a tremendous job within the TMP over the past decade working with the local communities and helping drive change. WWF has provided critical organization support, equipment, training, materials and guidance to six groups and continues to work hand in hand with both Sabah Parks and the community in the development, pending approvals, and implementation of the management plan.

Image Below: Pump Boat in the TMP

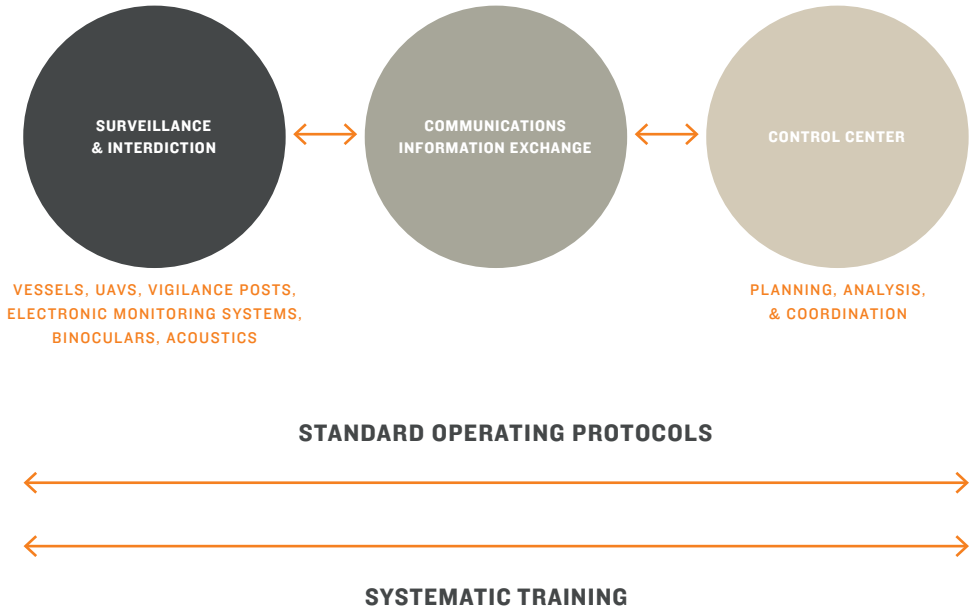
TECHNOLOGY OPTIONS FOR SURVEILLANCE

In this section we will examine the core operational components of an enforcement system. We will also briefly evaluate different surveillance technologies for the TMP. By no means is this a definitive list of all available surveillance technology, but a sample of technologies that we have deployed in our work. We have custom-designed high and low tech surveillance systems depending on the objectives and budgets of the local agencies as well the extent of the threat.

Generally speaking, a command control and communications (C3) system should possess the following three core components:

1. A control center for operations planning and coordination;
2. A communication network to enhance safety and ensure constant coordination of personnel; and
3. Surveillance sensors and interdiction assets that are strategically located to monitor key fishing grounds and to guide timely interdiction.

An effective C3 system also utilizes clear and concise standard operating procedures (SOPs) to optimize operations, govern the use and maintenance of all assets and ensure Ranger safety. Systematic training programs should be carried out for individual agencies and among agencies to foster effective joint patrols.



TECHNOLOGY ANALYSIS

Collaborative monitoring systems require location transceivers on-board vessels and require that the location device is active. Location messages include information such as: vessel name, latitude, longitude, course and speed. A specific regulatory law must be promulgated to obligate vessel owners to purchase and activate on board transceivers. If the location device is disconnected or tampered with, the shore stations and control centers will not see the vessel's position. As infractors tend to deactivate transceivers, regulations must consider penalties for opportunistic tampering by stakeholders. A major drawback of these systems is that they will not detect fishers from other areas or countries that do not employ transceivers.

TECHNOLOGY	VESSEL MONITORING SYSTEM (VMS)
Criteria	VMS is a satellite based monitoring system that provides vessel positions around the world. As typical location intervals range from 1-6 hours, VMS is more adequate for larger vessels and where sheer oceanic expanses need to be monitored. As the system is satellite based, position frequency implies a monthly cost to the user. Higher position intervals translate into a higher monthly cost. VMS is a closed source system: transmitted information is coded and only seen by the ship owner and their respective authority.
Recommendation	VMS is not suitable for the TMP as fisher vessels are too small and quick to monitor over six to one hour intervals and the recurring monthly costs will be too high for local fishers.
TECHNOLOGY	**VHF-SAT AUTOMATIC IDENTIFICATION SYSTEM (AIS)**
Criteria	AIS is a "focalized" system that initially worked over VHF frequencies and required shore-based stations to receive vessel position. The use of shore-based stations limited the coverage to the "radio horizon" (usually between 15-80 NM). Recent developments succeeded in placing AIS base stations on satellites, allowing them to overcome range limitations while still using the same VHF spectrum. Shore-based AIS service has no cost to the user and provides vessels positions every 3-30 seconds depending on the type of beacon on board: Class A - merchant ships, and Class B - small vessels. AIS is an open source system: information is public and all AIS equipped vessels can view one another.
Recommendation	AIS could be deployed to monitor the 120+ commercial vessels operating within the TMP; however, this would require a regulation mandating its use. ESSCOM currently mandates the use of AIS transceivers on commercial vessels operating in Eastern Sabah for security purposes. Sabah Parks and perhaps the Department of Marine could collaborate to mandate the use of AIS on commercial vessels as part of TMP regulations. There is an existing tower and AIS base station operated by MMEA at Balambangan, whose signal could theoretically be shared with Sabah Parks. PPKNK members stated they were open to the idea, though there would be tough resistance by some members and complained about transceiver costs being too high at 2,000 MYR. We do not recommend the use of AIS as a monitoring tool for artisanal vessels.

Non-collaborative monitoring systems are the best equipment option when detecting vessels that are intentionally carrying out illegal activities in a specific geographic area or in the absence of collaborative systems. We often layer systems to make up for the deficiencies of one particular technology and complement with the strengths of another. For example, radar systems often complement AIS systems nearshore in order to detect foreign vessels or vessels that have intentionally deactivated their transceivers. In this section, we will briefly examine different non-collaborative technologies and evaluate their appropriateness at the TMP.

TECHNOLOGY	RADAR
Criteria	Radars are ideal for the detection of medium to large vessels up to 30 NM. Given small vessel size and vessel materials (wood or fiberglass), the detection performance of conventional radars is limited to 6 NM for artisanal fisheries.
Recommendation	A high power radar already exists at the Balambangan MMEA surveillance tower. Sabah Parks should negotiate data sharing with the MMEA in order to monitor the movement of commercial fishing vessels throughout the West. We do not recommend the placement of radars anywhere else for monitoring artisanal fishers given the small size and materials (wood) of their vessels as well as the extent of the TMP.
TECHNOLOGY	**VISUAL (FIXED FROM OUTLOOK POST & WITH PORTABLE WITH BINOCULARS AND TELESCOPES)**
Criteria	The strategic placement of observation posts combined with the use of binoculars and/or telescopes can be extremely cost effective in near shore detection. Typically a patrol boat crewmember has a visual horizon of 4.5 - 5 miles. When lookout height is raised to 12 - 15 meters, visual horizon reaches 9 - 9.5 nautical miles.
Recommendation	We do not recommend the construction of outlook posts because of the numerous pathways and channels that exist combined with the mangroves. At a minimum, Sabah Park Rangers should possess binoculars for their patrols. As communities are located throughout the TMP, Sabah Parks should strengthen its network of Honorary Park Rangers and equip with them with binoculars.
TECHNOLOGY	**VIDEO CAMERA**
Criteria	Visual detection can be enormously improved by the use of fixed cameras. Cameras do require additional infrastructure.
Recommendation	Again, the MMEA possesses a long-range video camera at Balambangan. Sabah Parks may request access to the data feed as well. If not possible, we do not recommend the installation of high power video cameras anywhere else in the TMP given the numerous pathways and canals.
TECHNOLOGY	**NIGHT VISION DEVICES (NVDS) (FIXED AND PORTABLE)**
Criteria	Night vision devices operate in a similar way as video cameras with the exception that, in addition, it "amplifies" the scarce light that could be found in the observed scenario, therefore improving the vision capacity of the observer. Various drawbacks can be noted regarding this technology: • When operating in all dark conditions or very poor residual light, the detector will not be able to generate an image • NVDs are not low cost devices and with the advent of more efficient lowlight technology, common daylight/lowlight cameras are the first option from a cost/effective point of view. • Light amplification requires power, therefore, in portable devices, energy is an issue and normally continuous operation does not exceed 3 to 4 hours.
Recommendation	We do not recommend the use of NVDs at the TMP.

TECHNOLOGY ANALYSIS	
TECHNOLOGY	Thermal Surveillance Devices (Portable)
Criteria	The use of thermal radiation for marine surveillance revolutionized the former concepts of search and rescue since warm or hot bodies could now be easily detected against colder backgrounds (such as the ocean water). Bodies even behind bushes or mangroves are now identifiable.
Recommendation	We recommend the procurement of three portable thermal binoculars for nocturnal patrols in order to identify clandestine camps and illegal fishers hiding in the mangroves and canals.
TECHNOLOGY	UNMANNED AERIAL VEHICLE
Criteria	UAVs are versatile platforms that can be configured to perform surveillance and detection activities with longer on scene times and less risk than manned aircraft. Operators do not typically require the same degree of training, certification and experience as maritime patrol pilots. UAVs do not require large ground crews, costly maintenance and certifications, and are less weather dependent. In short, they provide the benefit of aerial surveillance similar to that of an airplane at far less cost and with enhanced safety. They are particularly suited to fly over planned patrol lanes (i.e., closed area boundaries).
Recommendation	We believe that a UAV may enhance surveillance and detection capability at the TMP; however, this a third tier asset and do not recommend their procurement at this point in time.

CONCLUSIONS

1. As the lead agency of the TMP, Sabah Parks must first strengthen its capacity and make critical investments in staff, infrastructure and training to dramatically improve communication with regional residents and ensure a presence throughout the TMP. A strong park is a respected park and a continuous presence serves as a deterrent in the long run. Sabah Parks must prioritize the hiring of a Park Manager, establish satellite offices, procure additional patrol vessels, craft standard operating protocols for key activities, train staff and invest in a VHF communication system to facilitate operations and increase Park Ranger safety.
2. Currently, residents of many of the communities and the associations they've created to represent them, are little informed about how the TMP will effect them despite multiple consultations carried out by Sabah Parks and WWF before and following TMP gazetment. Sabah Parks must design an effective and appropriate (meaning an approach that best matches culture of area and capacity/inclination of local people to take in new information) to communicate essence of new management plan, updated regulations, and zoning to fishers and as many folks as possible. While Sabah Parks has already been carrying this out, they will have to increase such efforts and more formally collaborate with WWF, HPRs and existing community organizations to achieve the goals of this communication plan.
3. Inter-institutional coordination will be vital in order to fill jurisdictional, economic and security gaps. Sabah Parks should consider negotiating bilateral agreements with select enforcement agencies in order to strengthen and better coordinate surveillance and patrol efforts. For example, the MMEA could potentially share surveillance data from its Balambangan post with SP in order to monitor commercial fishers. In addition, MMEA officers could join Sabah Park Rangers on patrols in the East to protect them from aggressive infractors. The Department of Marine could also share vessel registration data with Sabah Parks and work to register all vessels in the TMP including pump boats.

   At 8,987 km², the area of the TMP is just too large to monitor from Kudat and unfortunately there is no silver bullet technology to provide surveillance of the area and the great variety of fishing vessels used by residents and those who encroach from a distance, including neighboring countries. Sabah Parks will have to increase the frequency and duration of patrols and should develop an incremental capital plan beginning with at least one satellite office with respective vessel. Response times will be too slow and costly if patrols are only run out of Kudat. In addition, a mobile surveillance platform, such as a liveaboard, should be considered versus the construction of fixed stations as the liveaboard allows flexibility in the surveillance system as annual migration of fish populations, user patterns and even zoning boundaries change over time.
4. As the TMP management plan promotes collaborative management and local community involvement, Sabah Parks must incorporate both the HPR program and existing and varied community management models into the overall compliance strategy. Select communities have already demonstrated their commitment to the vision of the TMP and must be carefully inserted into the compliance framework. Sabah Parks should consider crafting a manual and Standard Operating Protocols (SOPs), developing and delivering an annual training for the HPRs and make decisions about equipping them with the necessary tools and communication equipment to protect them from potential harm and maximize their potential as allies in conservation.
5. Proposed TMP zonification, includes establishment of widely scattered preservation, community, multiple use, and commercial zones. While arguably based upon known science, the proposals are very complex, which would create substantial challenges for Rangers to explain and enforce and for stakeholders to understand. Complicating matters, there is no signage with respect to the different areas. A zone demarcation plan must be defined which includes the demarcation of priority areas. Several pilots should be carried out throughout the TMP.

PROPOSED CONTROL AND VIGILANCE SYSTEM DESIGN SUMMARY

The following control and vigilance plan is designed with the following criteria:

1. Limit Capital Expenditures (CAPEX) by utilizing existing infrastructure and keeping the number of sub-stations and equipment costs to a minimum;
2. Minimize Operating Expenditures (OPEX) by strategic placement of sub-stations, the deployment of a VHF marine radio network, improved coordination with the MMEA and the operation of a mobile enforcement platform.
3. Incorporate Honorary Park Rangers and communities as surveillance agents to protect fisheries and habitat.

PHASE I	
COMPONENT	RECOMMENDATIONS
SURVEILLANCE	1. Hire a TMP Park Manager and assign sufficient staff 2. Develop Standard Operating Protocols (SOPs) and deliver systematic training courses • Elaboration of control center, patrolling and boarding SOPs • Basic IMO safety courses and Boat Captain's course • Marine coastal enforcement operations • Operations planning and control center management • Yamaha basic and advanced O/B service training • P2P exchanges 3. Define overall control and vigilance strategy 4. Recommended infrastructure and patrol vessels 5. Control center and installation of VHF communications network 6. Provision of basic surveillance and safety equipment 7. Rules, Regulations and Communications Plan: • Draft regulations • Develop Outreach and Education Campaign to Stakeholders 8. Develop Honorary Park Ranger program: manual, SOPs and define minimum equipment 9. Negotiate and craft inter-institutional agreement and SOPs with MMEA
INTERDICTION	1. Establish reporting formats, job aids and checklists
PROSECUTION AND SANCTION	1. Recommended sanction considerations 2. Establish a practical database that allows for case monitoring and the recording of repeat offenders
MANAGEMENT	1. Monitoring and Evaluation: Key performance indicators 2. Simplification of the zonification and demarcation plan

I. STAFFING Sabah Parks must prioritize the hiring of the TMP Park Manager. He/she should spend a minimum of 75% on site and be responsible for strategic planning, coordination and overall management activities. A minimum of 18 staff will be needed for direct enforcement operations and that figure can increase substantially when considering two shifts per day. (Note these figures do not include administrative staff.) In summary, a minimum of four Rangers must be on duty at any given moment at each station. Each patrol vessel should be staffed with at least three officers: the Boat Captain and 1-2 Rangers responsible to perform outreach, patrol and boarding activities. Depending on the vessel, a machinist should also be onboard. The patrol vessel should be in contact with the control center officer every hour to report location and situation. The Rangers should be trained to operate both vessels and

control center activities thereby allowing greater flexibility in scheduling. As illegal fishing takes place at night, we highly recommend scheduling night patrols and the monitoring of key ports.

PERSONNEL	KUDAT	KARAKIT	MOBILE ENFORCEMENT PLATFORM	TOTAL
TMP PARK MANAGER	1			1
PARK RANGERS	4	4	3	11
BOAT CAPTAIN	1	1	1	3
MACHINIST	1	1	1	3
TOTAL	7	6	5	18

2. STANDARD OPERATING PROCEDURES AND SYSTEMATIC TRAINING First and foremost, we recommend establishing a manual and/or set of policies for the TMP that can guide Park Rangers in their actions and defend them from criticism when they do their assigned job. We firmly find value in such documents as they contribute to making good and consistent decisions. The elaboration of Standard Operating Protocols (SOPs) for key processes and activities will help institutionalize processes and prevent informal interpretation of rules and regulations.

SOPs are essential for institutionalizing enforcement procedures and help new personnel learn appropriate actions, responses and methods more quickly by providing a consistent and objective source for operations. SOPs are living documents designed to ensure the best, up-to-date practices for enforcement. For this reason, they should be updated regularly in accordance with the input and experience of the officers. As a minimum, SOPs should be developed for the following core enforcement components:

A. CONTROL CENTER: The control center should be staffed by at least one officer at all times and ideally operational 24 hours a day, 7 days a week. The operators communicate all infractions and events to the control center supervisor. The center is responsible for monitoring information concerning vessels entering and leaving MPAs and any movement within or near the area. Main responsibilities of the center include:

- Direction of communication between officers, vessels and managers, as well as with other agencies.
- Coordination of active operations and interdictions, as well as send backup as needed.
- Maintenance of all archives including user manuals and SOPs.
- Communication with external agencies and managing confidential information.
- Maintenance of technology and state of resources.
- Knowing that the personnel profile fits the functional need of the different posts.

B. PATROL: The SOPs for patrols should include:

- Pre-departure requirements (verify that all the bridge gauges and indicators are operating, test the speed control and guiding system, prepare underway logs, personal equipment, etc.)
- Perform checks of other equipment: obtain machine report and verify that portable radios are functioning, etc.
- Submit pre-departure report to the operational director.
- Determine patrol and operation area and review reports on traffic and detection equipment for the MPA.
- Establish patrol strategies: multiple boat patrol, patrol with cross search leader, barrier patrol, radar patrol, and patrol with searchlights, among other strategies.

C. BOARDING: Boarding inspections are subject to maritime control and interdiction procedures and must account for a range of potential activities from fishing violations to greater crimes such as drug trafficking, piracy, contraband, and murder, among others. Boarding inspections may be met with an armed and hostile response from a suspected crewmember. All boarding plans must consider these real and legitimate threats. Boarding inspections should take the highest level of precaution for personnel and the vessels. The minimum requirements of a boarding SOP include:

- Determine if patrols will be performed undercover.
- Determine the distance and speed of vessels to be intercepted and detained.
- Minimum training requirements for personnel in the inspection of different types of vessels and their associated risks.
- Protocols for the chain of command, control, and abnormal situation assessment (E.g. the escalation of a detected crime).
- Communications protocols to keep constant communication with the control center (E.g. perform periodic checks every 15 minutes).
- Restrictions on the use of cell phones or personal cameras while performing a boarding inspection (this can put the security/success of the operation at risk). Only the team leader is allowed to use them.

3. SYSTEMATIC TRAINING In spite of advances in technology, the number of accidents at sea is not decreasing. The majority of the incidents have their origins in human errors, which may have been caused by bad communication, lack of knowledge or experience, poor training, wrong management systems and many others. Understanding the role of the human element within the system is essential for safety improvement[12]. Systematic training and SOPs are designed to create routines that increase awareness and reduce risk. We highly recommend a combination of theory and practical exercises for improved retention of information and swift adoption of newly developed skills. Refresher courses should be delivered at a minimum once a year and be no less than 40 hours.

12 E. Barsan et al. 2012

COURSE TOPIC	COURSE DESCRIPTION
BASIC IMO TRAINING	• First aid • Survival at sea • Fire fighting
MARINE COASTAL ENFORCEMENT OPERATIONS	• Operations planning and preparation • Use of visual and electronic sensors in marine patrolling • Boarding procedures: Performing inspections, documentation to request, what to look for, and documenting your inspection. • Interviewing the suspect's boat crew • Conflict resolution • Crime scene key practices. Evidence collection and handling. • Operations/Felony Reports. I*nformation and items that are typically in a "good" report.*
OPERATIONS PLANNING AND CONTROL CENTER MANAGEMENT	• Control center functions including risk assessment, asset use, reporting, communication procedures, surveillance procedures, and documentation. • Telecommunication lines and coordination procedures with the MMEA • Situation escalation procedures and real time reporting • Nautical charts interpretation and navigation • Search and rescue • Personal safety issues for patrolling and boarding
YAMAHA BASIC AND ADVANCED O/B SERVICE TRAINING COURSE	• All Rangers should participate in an OEM basic outboard motor maintenance certification course • Overhauls are carried out in Kota Kinabalu. (OEM service technicians travel to Kudat to service the Marine Police's 4-stroke outboard motors. Sabah Parks should negotiate a similar arrangement if possible to limit downtime of vessels.)
PEER TO PEER (P2P) EXCHANGE	• International exchange with country where Coastguard/Navy & Parks collaborate on patrols • International exchange with country with extensive community outreach and participation in surveillance/compliance efforts

Figure No. 6 Distribution of protection zones throughout the TMP

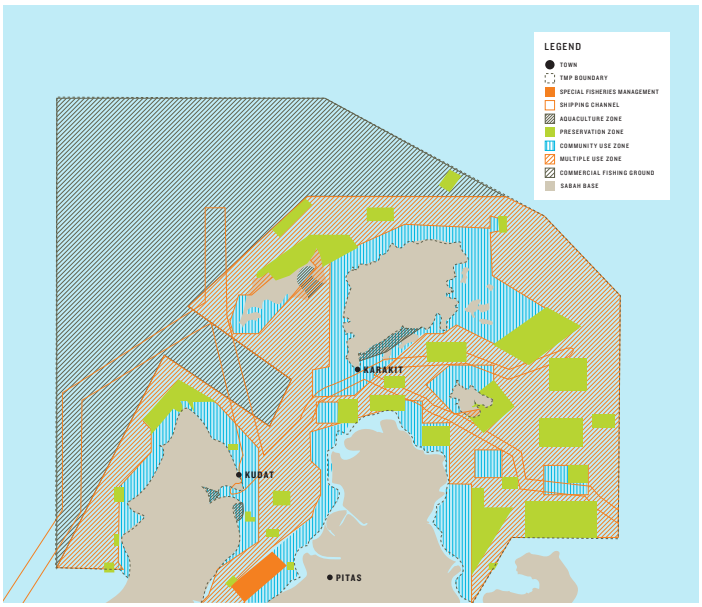
Figure No. 7 Commercial fishing zone in the TMP

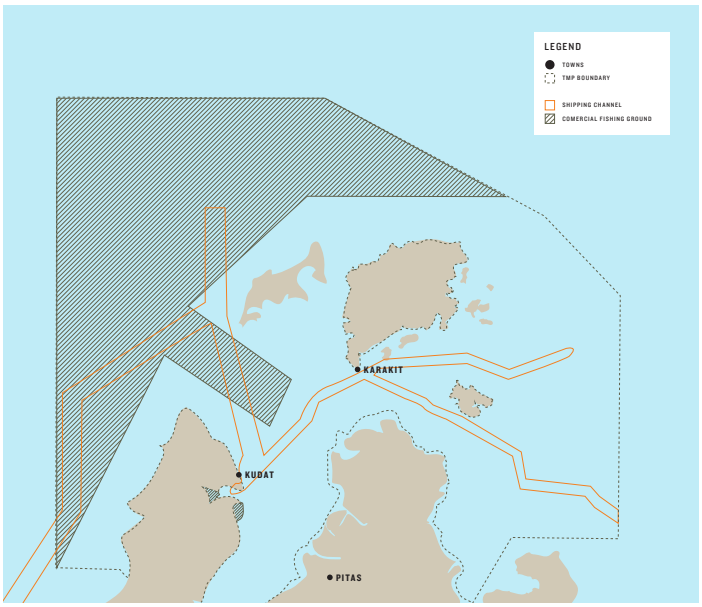
CONTROL AND VIGILANCE DESIGN

As Sabah Parks defines its control and vigilance strategy, we envision two distinct strategies for enforcing protected areas and fisheries regulations: one for artisanal fishers and another for commercial.

ARTISANAL FISHERS: Community engagement and outreach will be the pillar of the artisanal strategy. This will require strengthening the HPR program as well as working with community managed marine areas. The area of the TMP is too extensive and Sabah parks will never have enough staff to cover the entire TMP. We firmly believe that Sabah Parks can potentially secure local community buy-in of the artisanal sector by capitalizing on the existing tensions between the commercial and artisanal sector. If they can limit commercial encroachment into artisanal areas, Sabah Parks will develop an important ally. As illustrated by Figure 6, enforcement of the protection zones (green) will not be an easy task as they are numerous and scattered throughout the TMP. Outreach, demarcation and artisanal cooperation will be mandatory.

COMMERCIAL FISHERS: In order to better monitor the commercial sector, Sabah Parks should first strengthen its ties with MMEA as this agency has a strong and clear mandate to enforce fisheries regulations, it already possesses large patrol vessels and surveillance equipment (radars, AIS base station and long range cameras at Balambangan). The MMEA could also enhance safety at sea for Sabah Parks by having its officers accompany Park Rangers when on patrols in dangerous areas. Senior MMEA officials demonstrated interest in this possibility. In the future, Sabah Parks, in cooperation with various security agencies, might consider mandating the installation and operation of AIS transceivers on the 120+ commercial vessels operating within the TMP. As illustrated in Figure 7, the commercial fishing zone should be easier to enforce as the area is continuous and limited to the Western region of the TMP. With AIS transceivers and the use of geo fencing, authorities could easily monitor the movement of commercial vessels and be notified when vessels leave their designated zone.





RECOMMENDED INFRASTRUCTURE AND PATROL VESSELS

Given the sheer size of the marine park, it is not cost-effective to construct nor staff multiple sub-stations throughout the TMP. Based on our site survey and discussion with Sabah Park officers, we agree with Sabah Parks on the implementation of an incremental capital plan, which include the establishment of a sub-station at Banggi and procurement of a liveaboard. We understand there are plans for even more sub-stations; however, we do not recommend constructing any more stations until the impact of initial investments can be evaluated. Short – medium term infrastructure requirements and justification include the following:

1. HQ in Kudat with control center (Already operational since 2015)
2. A sub-station in Karakit, Banggi with respective vessel. We recommend Karakit for the following reasons: 1) confirmed available District office; 2) existence of power sources; 3) central location within the TMP, which reduces patrol expenses and response time; 4) guaranteed security with Police presence; and 5) reliable logistics with Kudat for supplies.
3. Procure an enforcement live-aboard/mobile enforcement platform versus the construction of additional fixed stations. The live-aboard allows flexibility in the surveillance system as annual migration of fish populations, user patterns and even zoning boundaries change over time. The live-aboard can be moored at either primary entrance/exit waterways on the

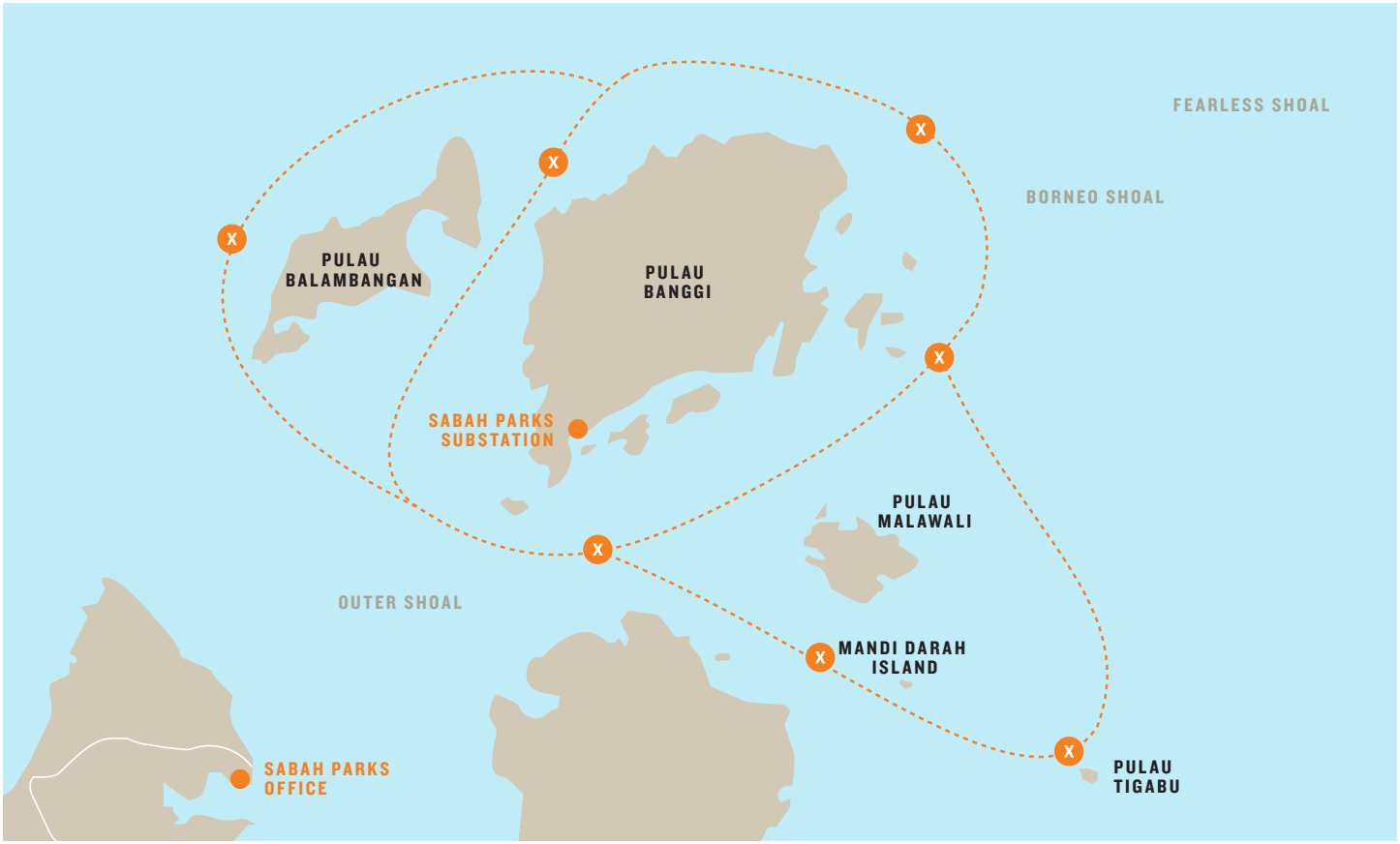
Figure No. 8 Distribution of Sabah Park offices and potential mobile surveillance platform patrol routes

Eastern side of the archipelago or at key preservation areas to serve as a deterrent, inspection point and mobile surveillance platform. The live-aboard could also benefit Sabah Park communication strategy as the vessel could stay moored at an Island for 1-2 weeks to ensure repetition of messaging, work with HPRs as well as for carrying out joint patrols. Again, a physical presence of an authority remains one of the best deterrents.

Figure 8 illustrates the location of the Sabah Park offices at Kudat and Karakit as well as the potential patrol trajectory of the enforcement live-aboard. Importantly, the live-aboard can be moored on the Eastern extremity of the archipelago in order to provide a sustained presence in an area that is notorious for the incursion of illegal fishers. As fishers move in response to the position of the live-aboard, it too can reposition itself to not only protect resources in the East, but in the North and West depending on the evolving nature of threats. The live-aboard should maintain close communication with security agencies, HPRs and local communities. Ideally, the vessel would be crewed with a couple of armed MMEA officers. The live-aboard should also be equipped with a 15–20 ft. fast boat with twin 60HP outboard motors for fast response capacity. Ideally, the fast boat possesses a low draft and is able to enter coral areas to pursue illegal fishers using pump boats. MMEA stated that they were limited on hot pursuits by the size of their vessels.

PATROL VESSELS

QTY	LENGTH	MOTOR	ACCESSORIES	
01	30' fiber glass boat for and logistics.	02 Yamaha 200-HP 4 stroke with remote control helm	• Fiber glass canopy • GPS with Electronic Chart Display • Magnetic compass	• Fixed marine VHF radio w/antenna • Fixed to hull fuel tank
01	50' live-aboard	200HP in-board motor	• Watermaker (60 gal/day) • Galley: 2 stoves, sink, garbage disposal • Refrigerator	• Superstructure: operations room, stateroom, galley and wardroom • Bathroom: 2 sinks, 2 urinals, 2 showers, 2 toilets • Kitchen quarters
01	18' fiber glass boat to accompany live-aboard	02 Yamaha 50-HP 4 stroke with remote control helm	• Fiber glass canopy • Portable AIS Class B beacon	• Fixed to hull fuel tank



CONTROL CENTER AND INSTALLATION OF VHF RADIO NETWORK

We recommend setting up a control center at Kudat for planning and communication purposes. The control center does not require substantial capital expenditures, but as a minimum should include a desktop computer, monitors, digital storage, lock and key filing cabinets, and a safe and other basic office furniture. It is important the control center allow the Park Manager and Rangers to carry out their operations and planning with privacy. If negotiations with MMEA are successful, the control center could possess a direct data link from their Kota Kinabalu control center for monitoring the movement of large vessels in the TMP.

Communications, command and control (C3) models are used throughout the U.S. armed forces to ensure mission objectives. This assures situational awareness and getting critical information to the right users at the right time. The core of enforcement operations is the VHF marine radio network. The VHF network will not only link the control center with patrol vessels and Park Ranger at ports, but also holds potential for linking tourism operators and HPRs into the control and vigilance system over time. We recommend a VHF communication system that possesses trunking ability thereby limiting wait times of groups using one repeater while permitting privacy in multi-group use. This is particularly important as Sabah Parks could maintain a private internal channel for confidential communication and assign the other channel for the network of HPRs and/or community groups. Additional features such as the inclusion of a unique identification number with every radio transmission so one can see who is talking on the air, would in turn deter abuse of the radio communication system. Finally, the range finder option will tell you whether the person you are calling is within range.

In cooperation with Sabah Parks and Arah Mekar Sdn Bhd, we carried out a site survey to design a VHF marine radio network with the goal of ensuring reliable communication throughout the TMP. As illustrated in Figures 9 and 10, we identified two potential locations for the placement of a repeater: Balambangan Island and Mt. Sinambung on Banggi Island. While installation costs at Balambangan Island would be very cheap assuming the use of existing MMEA infrastructure, Figure 9 illustrates the existence of substantial radio shadows to the South, Central and Eastern regions. In short, a placement of a repeater at Balambangan Island would be extremely ineffective in many of the sensitive areas where communication is most needed. In comparison, placement of a repeater at Mt. Sinambung is optimal as there are few areas where shadows exist as illustrated in Figure 10. While technically optimal, the Mt. Sinambung option proves to be expensive as no infrastructure currently exists at the site, nor is it accessible by road. The construction of a repeater station at Mt. Sinambung would require site preparation for the repeater and helipad; substantial capital investment for the cabin, tower, and solar power system; and all building materials, tools, and workers would need to be airlifted to the site via helicopter. The cost of the VHF communication system can be found in the budget.

VHF SITE SURVEY AND SHADOW AREAS

STATION	REPEATER	HYTERA MD788 50W BASE STATION	HYTERA MD658 25W MOBILE RADIOS	HYTERA PD508 5W HANDHELD RADIOS
Mt. Sinambung	1			
Kudat Base Station		1		
Kudat Patrol Vessel			1	
Karakit Base Station		1		
Karakit Patrol Vessel			1	
Liveaboard			1	
Liveaboard Fast Boat			1	
Sabah Park Rangers				8
Honorary Park Rangers				12
TOTAL	1	2	4	20

The key components of the VHF communication system include: the digital repeater and solar power supply, base stations for the Kudat and Karakit offices, mobile radios for the four vessels and handheld radios for the Sabah Park Rangers and HPRs. The distribution of equipment can be found in the adjacent table. The following steps must be taken for the procurement and installation of the VHF network:

1. Sabah Parks must obtain permission from the district office for the installation of the repeater on Mt. Sinambung;
2. Sabah Parks and Arah Mekar must secure radio license;
3. Site clearance and preparation of staging area;
4. Procurement of radios, solar system and repeater;
5. Contract helicopter services and trucking company for transportation of all equipment and helicopter fuel;
6. Hire support personnel for repeater installation;
7. Execute the radio repeater installation schedule;
8. Train Sabah Park Rangers on operation and maintenance of the VHF communication system.
9. Develop a handheld radio policy for HPRs and distribute radios to select contacts on a trial basis.

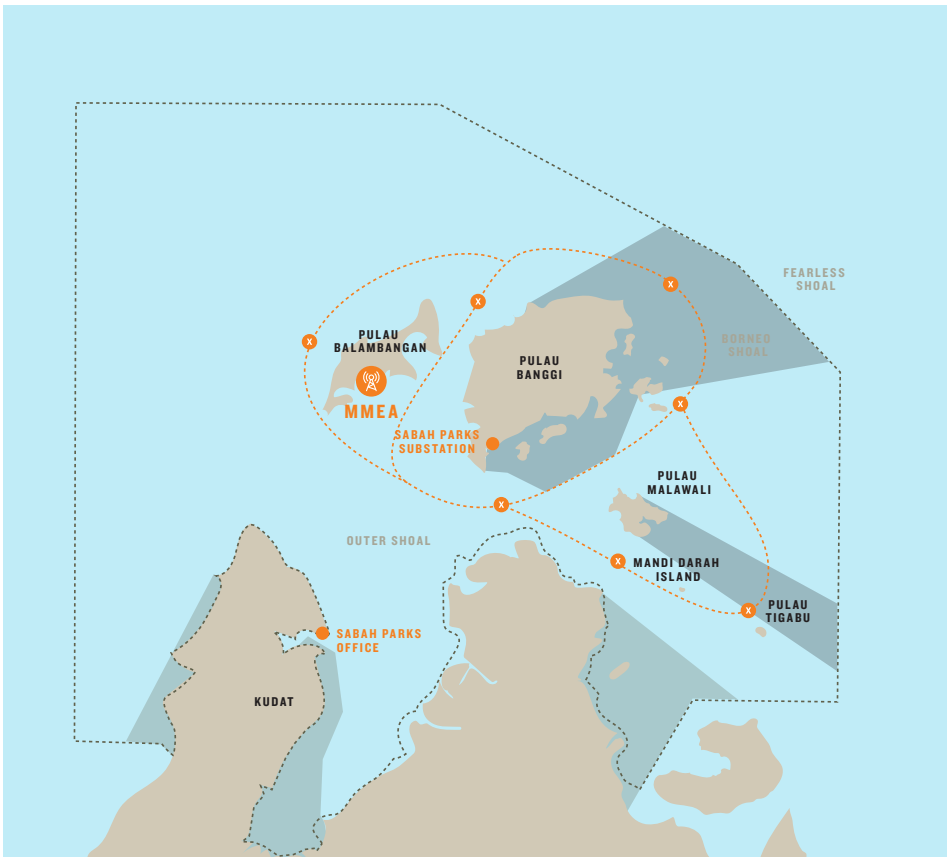


Figure No. 9 Radio Coverage with Placement of Repeater on Balambangan

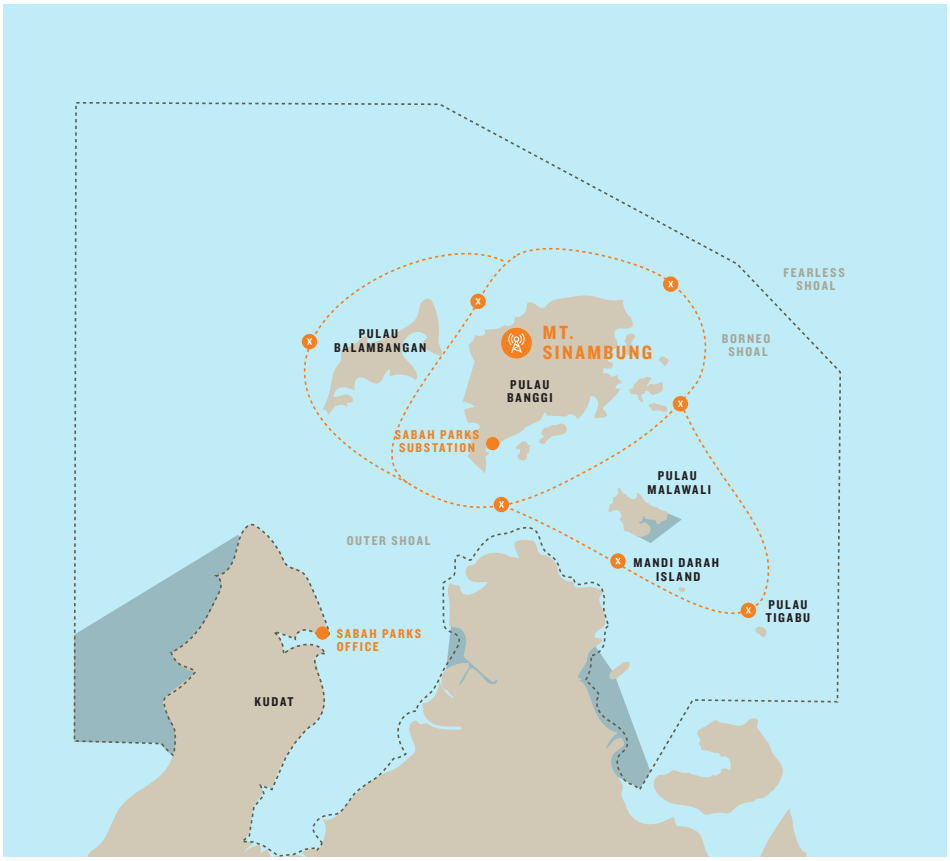


Figure No. 10 Radio Coverage with Placement of Repeater at Mount Sinambung

PROVISION OF BASIC SURVEILLANCE AND SAFETY EQUIPMENT

Most mariners lack basic surveillance and safety equipment at sea, which can make all the difference in a life or death situation. In the table below, we've included a list of basic surveillance and safety equipment for each vessel.

QUANTITY	ON BOARD EQUIPMENT	LOCATION
4	Megaphone 25W with rechargeable batteries	All boats
4	Waterproof/Shockproof/Portable GPS	All boats
6	First Aid Kit	Offices and all boats
24	PFDs (lifejackets)	All boats
1	GPS w/ECDIS Display and AIS interface	On board liveaboard
4	Marine waterproof Binoculars 10X50 up to 12X50	All boats
3	Marine waterproof Thermal Camera FLIR 320	All patrol boats
8	LED Search Lights w/rechargeable batteries	All boats
6	14.1 Megapixel Shockproof/Waterproof Digital Camera with Optical16x Zoom and built in GPS with extra batteries and flash memory cards	Offices an all boats
16	Leatherman Multi Tool	All rangers
4	Solar powered flashlights with battery backup	All boats
12	Inflatable Vinyl Boat Fender (8" x 24", White)	Smaller boats
6	Inflatable Vinyl Boat Fender (12" x 36), White)	Liveaboard
12	Coastal Locator Flares Kit	All boats (3 on each)
4	Pelican Case 1620	All boats

RULES, REGULATIONS & COMMUNICATION PLAN

As WWF-Malaysia is already working with Sabah Parks on drafting of the TMP regulations, we can only suggest the following:

1. Incorporate the AG into the process;
2. Fines should be set at the most appropriate level to ensure compliance. Penalties established for existing federal and state regulations should be used as a point of reference. The legal fees and costs of prosecution should be taken into account when setting the fines;
3. Design a simple citation format with checklists that requires minimal open-ended writing. A sample citation format can be found in Appendix 1.
4. Once the regulations are finalized, Sabah Parks must develop a simple education and outreach plan directed towards local fishers and the community alike. A simple fact sheet outlining zonification, regulations, restrictions, and fines should be widely distributed to all stakeholders. The Park Manager should lead outreach activities, however, Park Rangers are especially crucial to effectively disseminate essential information throughout TMP. We highly recommend involving both the District Officer and village leaders to reinforce understanding and acceptance of the new regulations. A phased approach to enforcement of laws and new regulations should be implemented whereby violators are first warned about infractions; however, as widespread knowledge of regulations is achieved, Rangers should be authorized to impose penalties at whatever level is needed to ensure compliance.

With respect to methodology, we suggest a communications plan to saturate the TMP with a team of people that would flood Kudat and the many villages on the inhabited islands to personally communicate the essence and details of the new management plan. Planning considerations for this idea would include:

a. *Message content*: The full range, from overall objectives, to focus on collaboration to zoning, and new regulations
b. *Means of delivery:* According to village leaders, the best method of communicating the new plan is personal; one or two members of this team should spend a day in each village talking with fishers, community leaders, and as many residents as possible about what the new Park and the new Management Plan means for them. Such conversation should clearly indicate that a key component is collaboration with them, and how that collaboration will happen. Easy-to-understand maps of various zones, lists of regulations, and maybe a two or three page introduction to the Park (overall significance, vision for future, etc.) should also be distributed widely. Perhaps some cannot or will not read it; however, it is important to leave something as a reference source for those who will.

c. *Timing*: In a perfect world the basic components of message decisions, planning, selection of the subject team, training the team, identifying logistical needs and how to meet them, etc. would be accomplished before the Plan is approved so that this major undertaking can be initiated as soon as possible following formal approval and implementation.
d. *Where*: Decisions about where presentations should be made are part of the planning process. It's our impression that presentations should be made in Kudat (probably more than once) and in most of the villages throughout the islands.
e. *Communication Team*: Criteria needs to be established for whoever will be selected to serve as part of this team. One option, which is employed from time to time in the U.S. Park system, is to select good folks from among Sabah Parks staff currently working in other parks, particularly those who are knowledgeable about the Park and have a track record of good communication and diplomatic skills.
f. *Roles and Responsibilities*: Overall leadership and management of the project should be agreed upon as soon as possible, presumably some kind of structured extension of the existing MOU between Sabah Parks and WWF. Personal responsibilities need to be assigned in terms of leadership, decision-making, and operational control.
g. *Monitoring and Evaluation*: Creation of some kind of system of ongoing review of "how it's all going" should be included in the plan, and should set forth a process to make changes when shortcomings are identified and such change is indicated.

FULLY DEVELOP HONORARY PARK RANGER PROGRAM

As the TMP management plan promotes collaborative management and local community involvement, Sabah Parks must incorporate the HPR program into the overall enforcement and compliance strategy. Sabah Parks should craft a manual and SOPs, develop and deliver an annual training for the HPRs and make decisions about equipping them with the necessary tools and communication equipment to protect them from potential harm and maximize their potential as allies in conservation. Once the VHF radio network is operational, select HPRs could receive a marine VHF handheld radio and alert authorities about any unusual activity or unidentified boats entering preservation or community zones. The HPR program should be rolled out gradually and perhaps initially limited to only one or two contacts per Island to ensure adequate training and management of the program. The HPRs must receive refresher training at a minimum of once a year. Radio property and responsibilities for their use must be clearly resolved in advance.

DEVELOPMENT OF INTER-INSTITUTIONAL AGREEMENT AND SOPS

We recommend that Sabah Parks negotiate a bilateral agreement and/or MOU with MMEA in order to strengthen and better coordinate surveillance and patrol efforts in the TMP for three primary reasons:

1. As MMEA already possesses sophisticated surveillance technology at Balambangan, Sabah Parks could avoid duplicating investments and receive monitoring data of commercial vessels;
2. MMEA officers bear firearms and could join Sabah Park Rangers on patrols in the East to protect them from aggressive infractors;
3. MMEA could potentially provide training to Sabah Park Rangers.

Note: Admiral Mohd Zubi Bit Mat Som of MMEA expressed interest in working with Sabah Parks to improve patrolling and management of the TMP. Please find suggested points to include in a MOU for joint patrols with MMEA in Appendix II.

As MMEA may be reluctant to work with Sabah Parks, we highly recommend the organization of a peer-to-peer exchange of Sabah Park and MMEA high-level decision makers with their peers from another country. Peer to peer experiences have proven to be successful in fostering new courses of action and forging creative solutions. Naval and environmental agencies in other countries routinely collaborate by carrying out joint patrols, sharing data from electronic monitoring surveillance systems, and joint operation of maritime control centers. Once the MOU is negotiated, we recommend ensuring that plans are operationalized and that each agency clearly define their respective roles and responsibilities. Subsequent peer-to-peer exchanges for operations personnel may be needed in order to ensure that the transfer of knowledge is not limited to senior staff. Finally, funds should be made available to underwrite joint activities; such as, fuel for joint patrols aboard Sabah Park vessels and per diem for MMEA officers who participate in those patrols.

INTERDICTION

ESTABLISH REPORTING FORMATS, JOB AIDS AND CHECKLISTS

We recommend that Sabah Parks prepare some job aids and checklist for key processes of the TMP. We've included some useful job aids and checklists for reference in Appendices III and IV. Job aids and checklists enable a user to perform a job even if they do not recall all of the specifics, actions, or steps associated with that job. Prepare job aids and checklists that are concise, focused, and written at the language and reading level of the typical user. Incorporate pictures, diagrams and other visual elements when they can make a point faster or clearer than a written text section. Prior to implementation, one must ensure that each job aid and checklist is thoroughly tested and reviewed. Ideally, develop your job aids and checklists on water resistant paper and make them small enough to easily fit into a pocket or clipboard. The following table highlights the types of activities, functions and benefits associated with job aids and checklists.

ACTIVITY / TASK	JOB AID / CHECKLIST FUNCTION AND BENEFITS
RECALL PROCEDURES AND STEPS	• Guide the user through each step in sequence from the first time • Task performance is standardized, reliable, and repeatable • Training uses the job aids that are in turn used in the field to build competency with a minimum of required training time
INSTITUTIONALIZE OEM CONTENT	• Capture content from OEM turn over training in a job aid or checklist to avoid "losing" those skills during warranty or initial operational time periods • Use still pictures and diagrams to show specific actions, parts, and results
MAKE EFFECTIVE CHOICES	• Job Aids that use "if –then" patterns can help users make correct choices and decisions for standard situations and issues
REPORT / DOCUMENT ACTIONS	• Provide clear reporting and documenting requirements and direction coupled with key operational tasks and functions • Guides the user on what and when they need to report, as well as who gets the report

PROSECUTION AND SANCTION

RECOMMENDED SANCTION CONSIDERATIONS

Enforcement systems require effective criminal, civil and/or administrative sanctions. Simply put: if there are no repercussions, fishers will return tomorrow. Lack of penalties will undercut community respect for regulations as well as negatively impact enforcement team morale. Unfortunately, environmental crimes often tend to be a low priority for elected officials and are difficult to prosecute as multiple agencies are involved in the administration of justice. Regardless, measures must be taken to avoid delays, improve coordination and decentralize the sanctionary process as impunity ultimately represents a loss for all involved. The following types of sanctions should be considered in the development of the Sabah Parks enforcement system:

CRIMINAL/CIVIL SANCTIONS

The following actions are recommended to improve judicial proceedings:

- Establish a standardized boarding report format with recommendations from the AG.
- Officers should be trained in the completion of this format.
- Formalize official relations between the agency and their federal counterparts.
- Carry out training workshops for judges, POs and lawyers at a minimum of once a year.

ADMINISTRATIVE SANCTIONS

In order to expedite the sanctioning process, where possible administrative sanctions should be carried out at the local level. The severity of measures should correspond to the seriousness of the violation and be determined at the level most cost-effective and sufficient to prevent re-occurrence of the violation. The following non-economic sanctions should also be considered:

- Vessel detention
- Restriction of sailing authorization permits
- Seizure of fishing gear
- Temporary suspension of the permits of ships, crewmembers or the ship-owner
- Revoking the operating licenses of ships, ship-owners, agents, maritime personnel or fishers

ESTABLISH A PRACTICAL DATABASE

Management should create a simple database for recording and tracking information on violations. Documenting and recording basic background information on past incidents may help with predictive policing. See Figure 11 for basic information to include in the design of a database. The database should be accessible to other law enforcement entities and permit the input of their records in order to provide a more comprehensive profile of infractors. Recording and documenting this basic information on violations can develop a clear profile of the violator. This aids in predictive policing and the swift identification of recurring offenders. Additionally, the database can provide useful information for managers when scheduling and planning patrols to enable a more effective strategy.

MANAGEMENT

KEY PERFORMANCE INDICATORS FOR MEASURING SYSTEM EFFICACY

In this section, we briefly explore key performance indicators (KPIs) for monitoring enforcement system efficiency and efficacy. KPIs can help managers evaluate whether their strategy is having the desired effect and whether staff is motivated and focusing on the right incentives or goals. KPIs have the added benefit of revealing trends over time allowing managers to carry out problem identification and strategy adjustment. When selecting indicators, we recommend quality over quantity as monitoring and evaluation (M&E) systems possessing too many indicators can be counterproductive and more of a burden than an asset. An M&E system will only be useful if enforcement and patrol officers *routinely* fill out standard reporting formats and upload the information into a personal computer. Often times, the less sophisticated the system, the better. In the following table, we list several field-tested indicators aimed at measuring overall enforcement performance and impact.

INDICATOR	DESCRIPTION	ASSUMPTION
PROCESS/ OPERATIONAL INDICATORS		
Boat Availability	Number of days each patrol vessel is available per month.	On an annual basis, a vessel should be in operating condition at least 75% of the time. Boat disrepair is common in many protected areas.
Absence of Partner Agencies on Patrols	Number of patrols where key partners did not participate.	Inter-institutional participation is mandatory in routine patrols. Simple logs help demonstrate whether partners are honoring commitments acquired via cooperative agreements.
Response Time	Time that authority takes from alert until reaching the perpetrator.	Quick response time demonstrates effective institutional or community response capacity.
Total Operational Costs	Total monthly expenses on fuel and maintenance.	Fuel and maintenance costs should decrease as VHF marine radio network, vigilance posts, and community surveillance informants come on line. Managers must monitor fuel and maintenance line items.
Miles Patrolled per Month	Total sum of miles patrolled on a monthly basis per the patrol boat GPS and the logbook.	Active patrolling does not always equate to better enforcement. Presence equals deterrence. However, it is important to ensure that miles patrolled correlate with fuel consumption.[2]
IMPACT/ PATROL INDICATORS		
Sightings	Monthly report of vessels detected yet not interdicted.	Base camps, small patrol vessels and HPRs serve as a deterrent.
Seizures	Monthly report of vessels interdicted classified by the type of infraction, fishing gear, origin of fishers & resulting sanction.	Seizures should decrease over time as local and foreign fishers become aware of constant enforcement presence.
Sanctions	Total number of sanctions vs. administrative and criminal cases initiated.	A ratio of 1 reflects that violations are being sanctioned effectively.

SIMPLIFICATION OF THE ZONIFICATION AND DEMARCATION PLAN

Proposed TMP zonification includes establishment of widely scattered preservation, community, multiple use, and commercial zones. While arguably based upon known science, the proposals are very complex, which would create substantial challenges for Rangers to explain and enforce and for stakeholders to understand. A law or regulation for a marine area cannot have its fully intended effect if the boundary description is vague, inaccurate, or incorrectly represented on a map. Complicating matters, there is no signage with respect to the different areas. A zone demarcation plan must be defined which includes the demarcation of priority areas. Several pilots should be carried out throughout the TMP.

FINAL TMP CONTROL AND VIGILANCE PLAN

In closing, we are confident that the enforcement program designed for the TMP is practical, affordable and feasible to implement over a four-year timeframe. As the lead agency of the TMP, Sabah Parks must first strengthen its capacity and make critical investments in staff, infrastructure and training to dramatically improve communication with regional residents and ensure a presence throughout the TMP. A strong park is a respected park and a continuous presence serves as a deterrent in the long run. Our key recommendations include establishing staff and leadership capacity for the Park through selection of an experienced park manager and hiring or reassignment of experienced park rangers to the TMP, establishment of a sub-station at Karakit, design of a robust VHF marine radio network with the deployment of two patrol vessels, and procurement of a live-aboard surveillance platform to provide a flexible presence and fast response capacity throughout the TMP. The HPR program and existing and varied community management models should also be incorporated into the overall enforcement and compliance strategy. Select communities have already demonstrated their commitment to the vision of the TMP and must be carefully inserted into the compliance framework. As no agency can do it alone, we've also recommended the negotiation of a bilateral agreement and/or MOU with MMEA in order to strengthen and better coordinate surveillance and patrol efforts in the TMP. All CAPEX and OPEX decisions were made in consideration of a highly limited budget. More importantly, we have defined a blueprint of critical steps for the capacity building and professionalization of the Sabah Park Rangers, who truly are the core component of the TMP enforcement program.

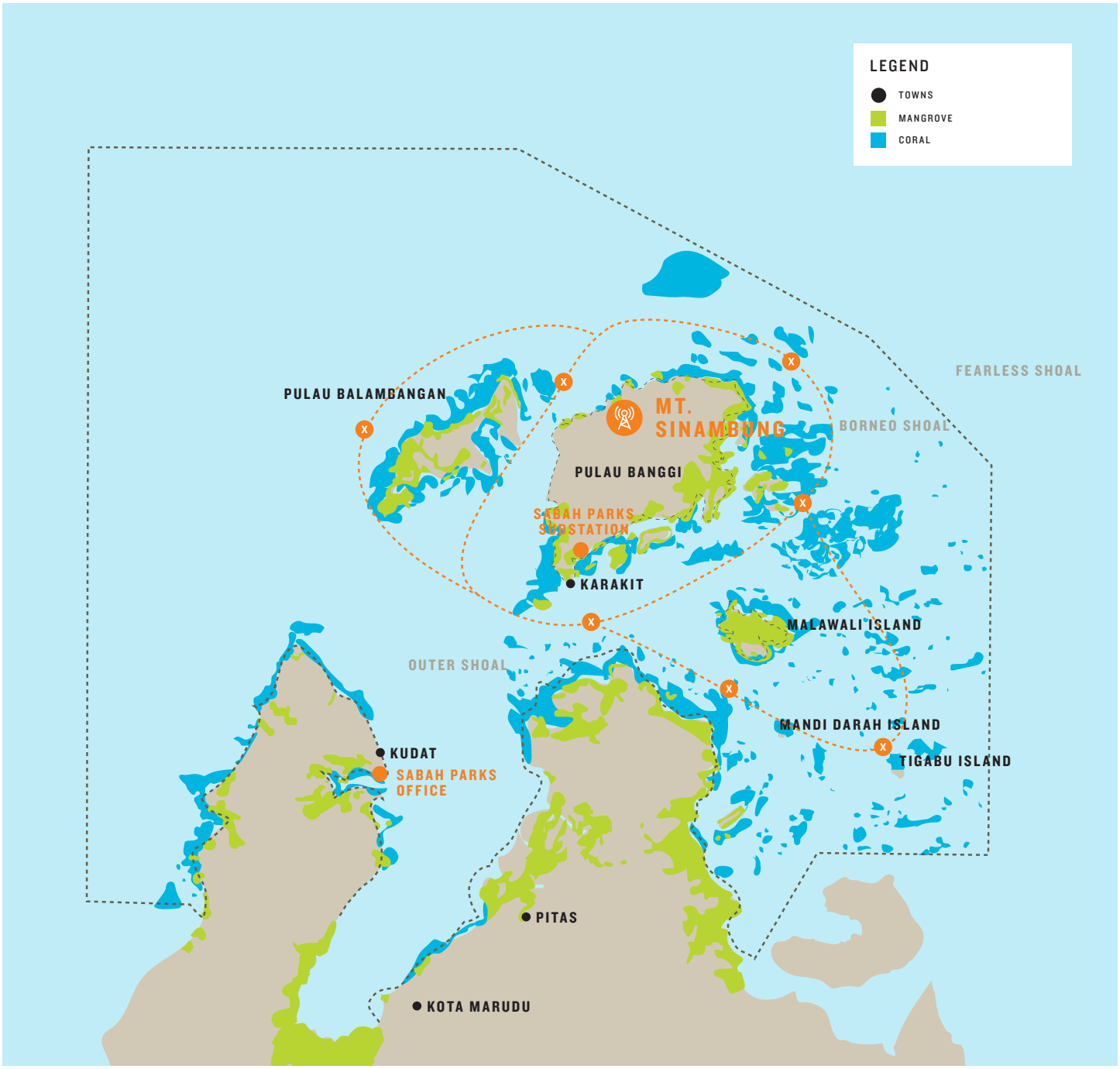


Figure No. 12 Final Surveillance Coverage

ACTIVITY BUDGET

ACTIVITY/LINE-ITEM	COST/UNIT/YEAR
1. HIRE A TMP PARK MANAGER AND ASSIGN SUFFICIENT STAFF	184,000
Park Manager: US$14,000 x year	14,000
Park Rangers, Boat Captian and machanists: 17 @ US$10,000 x year	170,000
2. DEVELOP STANDARD OPERATING PROTOCOLS (SOPS) AND DELIVER SYSTEMATIC TRAINING COURSES	105,000
a. Elaboration of control center, patrolling and boarding SOPs	30,000
b. Basic IMO safety courses and Boat Captain's course	10,000
c. Marine coastal enforcement operations	20,000
d. Operations planning and control center management	10,000
e. Yamaha Basic and Advanced O/B service training course	10,000
f. P2P Exchanges	25,000
3. DEFINE OVERALL CONTROL AND VIGILANCE STRATEGY	0
N/A internal Sabah Park meetings	0
4. RECOMMENDED INFRASTRUCTURE AND PATROL VESSELS	296,273
Banggi	114,230
Substation in Banggi (Sabah Parks has already secured office from District officer) Improvements, furniture and computers	20,000
30 ft.fgiber glass boat with canopy, GPS with electronic chart display, saftey & vigilance equipment and two Yamaha 200-HP 4 stroke outboard motors	75,000
Spare parts: propeller, spark plugs, filters, batteries 12V 105 AH for 150HP, panel switch, pumps, oil, tools and one kit of critical spare parts	8,056
Annual fuel estimate: 2 Outboard Motors (OBMs) x Wide Open Throttle (WOT) 9.7 Gallons Per Hour (GPH) x 40% x 60 hours/month x 12 months x $2/gallon	11,174
Mobile Surveillance Platform	182,042
"50 ft. live-aboard with Watermaker (60 gal/day) /Galley: 2 stoves, sink, garbage disposal, refrigerator / Superstructure: operations room, stateroom, galley and wardroom / Bathroom: 2 sinks, 2 urinals, 2 showers, 2 toilets / Kitchen quarters "	120,000
Maintenance of liveaboard (10% of initial capital cost - annually)	12,000
Annual fuel estimate: WOT 22 GPH x 40% x 80 hours/month x 12 months x $2/gallon	16,896
18' fiber glass boat to accompany live-aboard with two Yamaha 50-HP 4 stroke outboard motors	25,000
Spare parts: propeller, spark plugs, filters, batteries 12V 105 AH for 50HP, panel switch, pumps, oil, tools and one kit of critical spare parts	5,324
Annual fuel estimate: WOT 4.9 GPH x 40% x 30 hours/month x 12 months x $2/gallon	2,822
5. CONTROL CENTER AND INSTALLATION OF VHF COMMUNICATIONS NETWORK	103,338
Equipment for Kudat control center: computer, monitors, digital storage, filing cabinets and safe	5,000
VHF Communication network	98,338
Land lease for repeater	2,500
Site preparation and staging	10,000
Repeater cabin, self-supporting galvanzied antenna and lightning arrestor, Hytera RD900 50W series digital repeater, Radio license fee, SH61008 solar power supply, polyphaser protector and grounding	24,120
Base stations for Kudat and Karakit: Hytera MD 788, VHF, 1024 channels, 50W	1,843
Mobile radio for Kudat, Karakit, liveaboard and fast boat: Hytera MD 658	1,771
20 Handheld radios Hytera PD 608, 16 channels	5,476
Network configuration, installation & commissioning	22,738
Training	500

ACTIVITY/LINE-ITEM	COST/UNIT/YEAR
Helicopter rental and fuel	20,000
Logistics - Fuel and equipment transport from KK to staging area	2,000
Project Management	7,390
6. PROVISION OF BASIC SURVEILLANCE AND SAFETY EQUIPMENT	24,138
Surveillance and safety equipment (one for each vessel): megaphone, GPS, first aid, 6 PFDs per vessel, marine waterproof binoculars 12X50, (3) FLIR 320 thermal binoulcar, (6) 14 MP waterproof digital cameras with extra batteries and (10) 32GB flash memory cards, (6) Leatherman, (16) flares, and (6) pelican cases	24,138
7. RULES, REGULATIONS AND COMMUNICATIONS PLAN	40,000
a. Draft regulations - WWF sponsored activity	-
b. Develop Outreach and Education Campaign to Stakeholders	20,000
c. Deploy communication teams	20,000
8. DEVELOP HONORARY PARK RANGER PROGRAM: MANUAL, SOPS AND DEFINE MINIMUM EQUIPMENT	52,934
a. Manual	20,000
b. SOPs	20,000
c. Equipment - We recommend a pelican case for select HPRs possessing: VHF marine handheld, biocular, GPS, waterproof camera and leatherman. (Initiate the program with 6 HPRs)	7,934
d. Annual refresher course & movilization fees	5,000
9. NEGOTIATE AND CRAFT INTER-INSTITUTIONAL AGREEMENT AND SOPS WITH MMEA	45,000
a. Workshops with MMEA and select partners	5,000
b. Equipment, materials, fuel and per diem for MMEA officers	40,000
10. ESTABLISH REPORTING FORMATS, JOB AIDS AND CHECKLISTS	20,000
Salaries	20,000
11. RECOMMENDED SANCTION CONSIDERATIONS	10,000
Lawyer fees	10,000
12. ESTABLISH A PRACTICAL DATABASE THAT ALLOWS FOR CASE MONITORING	10,000
Salaries	10,000
13. MONITORING AND EVALUATION: KEY PERFORMANCE INDICATORS	10,000
Salaries (Should be incorpoarted into routine of Rangers)	10,000
14. SIMPLIFICATION OF THE ZONIFICATION AND DEMARCATION PLAN	65,000
Workshops	15,000
Signage	50,000
TOTAL	**965,683**

IN THE STATE COURT OF MALAYSIA
SABAH PARKS CITATION, COMPLAINT, AND SUMMONS

SEQUENCE NO. _____

CITATION NO. _____

THE UNDERSIGNED AUTHORIZED ENFORCER OF SABAH PARKS LAWS CERTIFIES THAT:

DATE _____ TIME _____ (AM/PM) LOCATION NAME _____ COORDINATES _____

FULL NAME (F/M/L) _____ ID OR PERMIT NO. _____

NATIONALITY _____ D.O.B _____ SEX MALE / FEMALE PHONE NO. _____

MAILING ADDRESS _____

EMPLOYER (IF APPLICABLE) _____ PHONE NO. _____

VESSEL (MAKE, MODEL, YEAR, ENGINE) _____ LICENSE & REGISTRATION NO. _____

REGISTERED OWNER OF VESSEL (NAME/ ADDRESS/TEL. NO.) _____

CITED VIOLATION

I hereby declare that the person named above and whose signature appears below did, in tun mustpha marine park, at the date, time and place mentioned above, commit the following violation(s):

CHECK BOX OF VIOLATION(S) OR POSESSION(S)	FINE	BILL NO.
☐ UNLAWFULLY THROW, DISCARD, DISPOSE, SCATTER, OR CAUSE TO THROW, DISCARD, DISPOSE OR SCATTER ANY WASTE, TRASH OR DEBRIS	$50	KYPL 8-99-47
☐ SPILLING/DISPOSING OF ANY POLLUTANT IN THE RESERVE	$50	KYPL 7-96-30
☐ UNLAWFUL CHANGING OF BOAT MOTOR OIL IN STATE WATERS	$50	
☐ UNLAWFUL SPILLING OR DISPOSING OF ANY POLLUTANT STATE WATERS	$50	KYPL 8-99-44
☐ UNLAWFUL USING, SELLING, OR DISPOSING OF ANY CLEANING AGENT STATE WATERS	$50	
☐ UNLAWFUL OPERATION OF A JET SKI	$50	
☐ UNLAWFUL FISHING OF PROTECTED SPECIES OF FISH OR FISH ON MORATORIUM	$100	KYPL 15-16

CHECK BOX OF VIOLATION(S) OR POSESSION(S)	FINE	BILL NO.
☐ UNLAWFUL FISHING WITHOUT PERMIT	$100	RESOLUTION NO. 15-31-15SS
☐ UNLAWFUL FISHING AND HARVESTING OF MARINE RESOURCES FOR AQUARIUM COLLECTION PURPOSE FOR 3YRS	$50	
☐ UNLAWFUL OF OPERATION OF A MOTORBOAT WITHOUT REQUIRED EQUIPMENT AND SAFETY MEASURES	$100	
☐ UNLAWFUL COMMERCIAL FISHING WITHOUT A COMMERCIAL FISHING LICENSE ISSUED BY SABAH PARKS	$50	
☐ UNLAWFUL COMMERCIAL PHOTOGRAPHY WITHOUT PERMIT ISSUED BY SABAH PARKS	$25	
☐ UNLAWFUL CLAMMING OR CLAM FARMING	$100	KYPL 9-2001-62
☐ UNLAWFUL CONSTRUCTION OF STRUCTURE SUCH AS DOCK, PORT, PIER, JETTY OR WHARF	$200	KYPL 12-2003-71

ISSUING OFFICER REMARKS/FACTUAL DESCRIPTION _____

I certify under penalty of perjury that I have reasonable grounds to believe the above-named person committed the above offense(s) contrary to Malaysia Laws.

STATE OFFICER (PRINT & SIGN) _____ WITNESS/ADDITIONAL OFFICER PRESENT (PRINT & SIGN) _____

DEFENDANT

By signing below, I acknowledge receipt of this citation and understand that if I choose to contest this matter, I must appear at the Small Claims Court Service Desk, Malaysia State Court Building in Kota Kinabalu on the _____ day of _____ 20 _____ at 9:00am. If I do not wish to contest this matter, I must appear at Sabah Parks Office located in Kota Kinabalu before the above date and pay the assessed fine(s) to the Malaysia Treasury as directed. Payments made will be treated as a guilty plea and no further action will be required.

If I fail to appear in the designated court on the above date or fail to pay the appropriate fine at the Malaysia Office located in Kota Kinabalu by the above date, then an additional complaint may be filed against me upon which a warrant for arrest may be issued.

SIGNATURE OF DEFENDANT _____ DATE _____ CITATION NO. (CLERK OF COURTS) _____

WHITE AND BLUE COPY (SABAH PARKS OFFICE) YELLOW COPY (VIOLATOR) AND GREEN COPY (COURT COPY)

WILDAID

ASPECTS FOR CONSIDERATION FOR AN MOU WITH MMEA FOR JOINT PATROLS

ASPECT	DETAILS TO BE INCLUDED
ADMINISTRATION OF THE AGREEMENT	Each institution must assign staff to oversee adherence to the agreement and be responsible for resolving any operational or administrative situation. There should be bi-monthly meetings for evaluation. The TMP manager should submit the agenda and key talking points one week in advance of meeting. Revisions to the agenda and decisions made during meetings should be recorded as amendments to the agreement and signed by both parties. The TMP manager or his representative will be in charge of preparing the amendment and distributing copies to each party.
HUMAN RESOURCES	MMEA should assign a minimum of the following permanent staff: • Kudat patrol vessel, one officer • Banggi patrol vessel, one officer • Liveaboard, two officers Personnel should remain within the protected area for a minimum of one month and will use the housing quarters, common spaces, and the control center.
MEALS	Sabah Parks will cover the daily cost of food for the MMEA personnel assigned to control and vigilance within the protected area.
PLANNING AND EXECUTION OF OPERATIONS	The TMP manager will prepare weekly or daily patrols, establishing the hours of departure and routes/ points to follow. The TMP manager or his representative will be in charge of the control center and keep log of events. During boardings, the MMEA personnel will be responsible for boarding vessels that will be inspected. MMEA staff will conduct patrols aboard vessels, conduct surveillance from vigilance posts, and act as an operator from the marine operations control centers. During operations, the MMEA should enforce the law in all its extensions and according to their competencies. In situations where vessels do not allow boardings or where they escape interdiction, MMEA should proceed to pursue and detain said vessel in their port of registry. To this end, the patrol vessel or the control center would request support as needed for the mission's escalation. Once the illegal vessel is detained, MMEA would return the vessel to Sabah Parks to administer sanctions.
OPERATIONAL REPORTS	The park ranger in charge of the operation will present an operational report for each mission. The reports should include the signature of the member of the MMEA that participated during the patrol. In the event that the operation resulted in infractions, there should be an additional report, which should be signed by the MMEA commander on duty for the TMP region.
VESSELS AND FUEL	Sabah Parks will be responsible for providing the vessel, its motor, and fuel necessary for the patrols. Sabah Parks will occupy the vessel with the necessary navigation and safety equipment.
COMMUNICATIONS	The Operations Control Center will have the following means of communications: • A VHF line with Maritime Mobile Service • A landline telephone (if it exists) • A private VHF line (with state frequencies) • Cellular For radio communications, the parties should indicate the specific frequencies to use for calls and coordination. The MMEA should manage the administration of Maritime Mobile Service Frequencies.
SITUATIONAL ESCALATION	In the event of situations that escalate beyond the capacity of the MMEA officer, the Control Center Supervisor or the TMP manager, the parties should designate the next authority level who can make those decisions. Aspects that constitute motives for escalation could include: accidents aboard the patrol vessel, other naval vessel accidents at sea, injuries, violent reactions or the use of weapons during vessel inspections or coastal operations.

MALAYSIA RANGER PATROL PLANNING & BRIEFING CHECKLIST

☐ WHO IS YOUR PATROL TARGETING?—Suspected poachers, tourists, fishing derby participants, etc.

☐ WHAT IS THE GOAL OF YOUR PATROL?—To find illegal activity, to deter illegal activity, to educate the public, to collect intelligence, etc.

☐ WHEN WILL YOU CONDUCT YOUR PATROL?—Planned departure and return date/time

☐ WHERE WILL YOU CONDUCT YOUR PATROL?

☐ WHY ARE YOU CONDUCTING THIS PATROL?—Intelligence has been received, you need to fill an information gap, you haven't patrolled a specific area recently, etc.

☐ HOW WILL YOU CONDUCT YOUR PATROL?—Patrol pattern (Snake, Box, Fence) plotted and planned if appropriate, stealthy (quiet/lights off) or overt (lights on/loud), etc.

☐ COMPLETE PATROL EQUIPMENT CHECKLIST:

☐ BOAT GPS: POSITION CHECKED, PROGRAMMED PER PLAN	☐ ANCHOR/TOWING LINE: GOOD CONDITION, SIZED FOR BOAT.
☐ BOAT VHF RADIO: TESTED	☐ PFDS: I/PERSON, EXTRAS
☐ FUEL: FULL TANK(S), NO SEDIMENT, CLEAN FUEL, EXTRA FUEL	☐ FIRE EXTINGUISHER(S): FULLY CHARGED, WITHIN INSPECTION DATE
☐ ENGINE OIL: FULL RESERVOIR	☐ FIRST AID KIT: NO EXPIRED ITEMS, FULL KIT
☐ HAND TOOLS: TOOL KIT FOR EMERGENCY REPAIRS	☐ POTABLE WATER: ENOUGH FOR TWO DAYS IN CASE OF EMERGENCY
☐ FLARES: UNEXPIRED DAY AND NIGHT FLARES	☐ COLORED FLAG
☐ HORN	☐ BINOCULARS: CLEAN
☐ ANCHOR: ANCHOR SIZED FOR BOAT W/CHAIN LEADER	☐ MASK, FINS, SNORKEL

INSPECTION KIT

☐ CITATION FORMS, EVIDENCE RECEIPTS & PENS	☐ TEAM GPS: LOCATION CHECKED, SPARE BATTERIES
☐ JOB AIDS	☐ TEAM VHF RADIO: TESTED, CHARGED
☐ MEASURING TAPE	☐ DIGITAL CAMERA: EMPTY DATA CARD, CHARGED

☐ PLAN PATROL COMMUNICATIONS: WHO WILL MAN THE RADIO AT BASE? CHECK IN EVERY 30 MINUTES, UPON ARRIVING OR AFTER DEPARTING PATROL AREA, UPON STARTING OR COMPLETING INSPECTION, ANY OTHER EVENT OF SIGNIFICANCE

☐ CONDUCT SAFETY BRIEF: EVERY MEMBER OF THE TEAM PROVIDES INPUT. DISCUSS:

- CREW—Experience, Physical and mental state, crew rest, etc.
- ENVIRONMENT—Time of day, weather conditions, navigation hazards, etc.
- MISSION—Complexity of patrol plan, anticipating any confrontations, number of information gaps, etc.

CASE FILE JOB AID & CHECKLIST

01. DURING INSPECTION: COLLECT EVIDENCE & ISSUE CITATION

☐ "WHO"—Verify identity of suspect

☐ PICTURE OF PERMIT

☐ PICTURE OF OTHER IDENTIFICATION (LICENSE, PASSPORT, ETC.)

☐ PICTURE OF SUSPECT

☐ "WHAT" & "HOW" DETERMINE ACTIVITY OF SUSPECT BOAT AND CREW

☐ VIDEO OR PICTURE SHOWING FISHING ACTIVITY, GEAR, FROM FULL VESSEL TO CLOSE-UPS OF GEAR

☐ PHOTOGRAPH ILLEGAL CATCH OR GEAR AS FOUND BEFORE MOVING/ SEIZING. USE KNOWN SCALE OR MEASURE FOR CATCH SIZE.

☐ VIDEO WITNESSES PROVIDING STATEMENTS —ask them questions to ensure all information is included—who/what/ when/where/why/how —also their full name, address, phone wnumber

☐ "WHERE" DETERMINE POSITION OF BOAT, GEAR AND PATROL VESSEL

☐ GPS POSITION FROM PATROL BOAT (PICTURE)

☐ PORTABLE GPS READING (PICTURE) WHILE ON FISHING BOAT

☐ SUSPECT STATEMENT OF WHERE THEY THINK THEY ARE

☐ GPS OR POSITION INFO FROM EQUIPMENT ON SUSPECT BOAT

☐ IF GEAR IS NOT ATTACHED TO BOAT; PORTABLE GPS READING DIRECTLY OVER GEAR.

☐ "WHY" COLLECT INFORMATION AND INTELLIGENCE THAT CAN BE USED TO FOCUS FURTHER PATROLS

☐ INTERVIEW CREW TO LEARN ABOUT OTHER ILLEGAL ACTIVITY OR WAYS THAT ILLEGAL ACTIVITY CAN BE PREDICTED IN THE FUTURE.

☐ SEIZE CATCH, GEAR, AND/OR BOAT IF APPROPRIATE

☐ IDENTIFY ITEMS FOR SEIZURE AND INFORM BOAT CAPTAIN AND CHIEF OR RANGERS

☐ CREATE EVIDENCE RECEIPT AND LABEL AND START CHAIN OF CUSTODY

☐ COMPLETE AND ISSUE CITATION

☐ "COMPLETE AND ISSUE EVIDENCE RECEIPT IF ANYTHING IS SEIZED (INCLUDING ILLEGAL CATCH)

02. AFTER INSPECTION: CREATE CASE FILE & SUBMIT TO PROPER AUTHORITY

☐ PREPARE ADDITIONAL EVIDENTIARY DOCUMENTS

☐ IF ALLEGED VIOLATION IS BASED ON MANAGEMENT ZONE VIOLATION (CLOSED AREA, SUBSISTENCE ONLY, ETC.) MARK LOCATION OF VESSEL ON CHARTLET

☐ COMPLETE PHOTO LOG—EXPLAIN WHAT EACH PHOTO INCLUDES

☐ FOR HIDDEN COMPARTMENTS: SKETCH SPECIFIC EVIDENCE LOCATION, DIMENSIONS, FINDINGS

☐ DRAFT AND COLLECT BOARDING TEAM STATEMENTS, THE STATEMENTS SHOULD INCLUDE:

- Time/date of start of inspection
- Ranger observations of boat, crew, gear during approach
- Vessel position, including both lat/long and location common name
- Suspect's name and name of other people onboard
- Violation detected
- Details of violation: number of undersized or no-take fish, length of the fish if undersized, fishing activity described in detail, etc. The more detail the better.
- Describe seized items (size, type, amount)
- Time/date of end of inspection
- Include FACTS only, NO SPECULATION!

☐ COMPLETE EVIDENCE INVENTORY

☐ LABEL EACH INDIVIDUAL PIECE OF EVIDENCE WITH ITS OWN ID NUMBER

☐ REMOVE DATA CARD FROM CAMERA, PUT IN BAG AND LABEL WITH EVIDENCE ID NUMBER

☐ COMPILE COMPLETED CASE FILE AND STORE IN SECURE LOCATION

☐ COMPLETE EVIDENCE INVENTORY CHAIN OF CUSTODY SECTION FOR EACH TRANSFER OF EVIDENCE, STARTING WITH TRANSFER FROM BOARDING TEAM TO EVIDENCE CUSTODIAN

☐ CASE FILE SHOULD INCLUDE:

- This Case File Checklist
- Citation Form
- Evidence Inventory & Receipt
- Boarding team statements
- Photo log
- Camera data card
- Chartlets (if applicable)
- Crime scene sketches (if applicable)
- All seized evidence (if applicable)

☐ SUBMIT CARBON COPY OF CITATION SHEET TO STATE OFFICE FOR COLLECTION OF FINE, OR FURTHER PROSECUTION SHOULD FINE NOT BE PAID

03. FINAL DISPOSITION

☐ DISPOSE OF EVIDENCE AND DESTROY CASE FILE PER LEGAL AUTHORITY DIRECTION

☐ CLEAN AND RETURN CAMERA CARD OR OTHER DATA COLLECTION TOOLS TO USE

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