

Name of Protected Area: Tabad Island Wildlife Management Area

Part 1: Basic information about the protected area

Table 1. Protected area information

Name, organisation and contact details for person(s) conducting the assessment <i>Person 1: Name, Organisation, Address, Email, Phone</i>	Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, a.peterson@uq.edu.au, 0414300955
<i>Person 2: Name, Organisation, Address, Email, Phone</i>	Bernard Suruman, CEPA, bsuruman@dec.gov.png.
Today's Date	23/08/2016
Name (or names) of protected area	Tabad Island Wildlife Management Area
Size of protected area (ha)	18.2
PNG Code or number	
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	316933
What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc)	Wildlife Management Area
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	
Country	Papua New Guinea
Province/s	Madang
District/s	Madang
Local level governments	Ambenob
Ward/s	6 (about 6,000 people in the ward)
Nearest big town	Madang
Location of protected area (brief description)	The WMA is about 9km north of Madang (about 15 minutes by boat). It is west of Laugum, Duad and Malmal Islands, within Madang Lagoon. The island is about 1ha in size and surrounded by fringing reef.
Map references	
When was the protected area gazetted or formally established?	26/01/2006
Reference for gazettal or Memorandum of Understanding (MoU)	
Who owns the protected area? please enter Government Private Community/ customary landowners, private, Other (name) and include Clan name(s)	Customary Landowners; Tagalafun Clan (about 600 people)

Number of households living in the protected area	0
Population size within the protected area	0
Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	Management Committee (2 female, 4 men) from Tagalafun Cla.
Total number of staff (this means anyone working on the protected area in paid jobs – whether NGOs, community, rangers or customary landowners	0
<i>Temporary paid workers</i>	0
<i>Permanent paid workers</i>	0
Annual budget (US\$) – excluding staff salary costs	0
Operational (recurrent) funds	0
Project or special funds	Small (some money paid from people using the island).
Reason for park establishment	To protect a number of unique and rare species and their habitat on the reef. Aron Jenkins (Wetlands International) was monitoring the reef when he discovered some unique black fish species [azong] on the eastern side of the island and also some octopus (very unique) and special breeding places for the octopus. He encouraged the resource owners to protect the island and reef.
What are the main values for which the area is designated (Fill this out after data sheet 2)	
List the primary protected area management objectives (add lines if needed after the most important objectives): <i>Management objective 1</i>	Establish ecotourism opportunities that will generate income to better manage the WMA.
<i>Management objective 2</i>	Address the ongoing problems associated with sea level rise and erosion.
<i>Management objective 3</i>	
Number of people involved in answering the assessment questions	7
Name/organisation/contact details of people participating the assessment (<i>Please do not insert return/enter or dot points</i>)	<i>Salau Begg</i> , Tabad WMA, Riwo Village, PO Box 405, Madang, 71779719; <i>Teddy Punpun</i> , as above, 71968485; <i>Punpun Dau</i> , as above, 79792854, <i>William Dau</i> , as above, 71432197; <i>Anna Kassas</i> , as above, 71935527; <i>Hillary Dau</i> , as above; <i>Hood Kassas</i> , as above, hkassas2008@gmail.com, 73490020.
Customary landowners/other community; CEPA, Other national government agency; Provincial govt; local level govt; Protected area staff (anyone working on the protected area in paid jobs; NGO; Donors; External experts; Others	Customary landowners
Please note if assessment was carried out in association with a particular project, on behalf of an organisation or donor.	SPREP through the PNG Protected Area Assessment Project, which is a component of the GEF Community-based Forest and Coastal Conservation and Resource Management Project in PNG.

Part 2: What makes this protected area special and important?

After research was conducted on Tabad Island, we came to understand that there were important and unique species on our reef (e.g. breeding place for fish [azong] and octopus). We came to an agreement to protect the island in 1996 and we received some assistance from Mama Graun to undertake monitoring. On the island there are traditional sites. Our ancestors migrated to Tabad from other areas, after a tsunami hit their land, but today no one lives there (they have migrated to the mainland). There are important cultural sites, including the flat rock (Panuluan stone) on the northern side of the island. Pregnant women sit on the stone and it is believed that they will have tall children. A special spear is made from the cane that grows on the island. There is also the yellow coconut that was brought to the island by the early settlers. There are diverse marine species and some seagrass which are important for dugong and turtles. One of our biggest issues is climate change, especially sea level rise, which is resulting in higher sea levels, greater erosion and loss of our island, which has eroded on the western side by about 20m since the 1980s.

Table 2. Key values of the protected area

No.	Key values	Brief description	Note if endangered species or ecosystem (IUCN)
1	Reef ecosystem	The breeding place for many species (e.g. octopus and black reef fish [azong]); habitat for beche de mere, turtles (green), sharks, dolphin and a crab that is unique to Tabad was discovered by a French expedition (2013). A reef and fish check has been undertaken intermittently, but there is no recent information on the reef. The reef also provides some protection to the island to minimize erosion.	
2	Sea grass	Seagrass is found on the sand beach side and this is important for fish breeding, dugong and turtle. Before it was tall, now it is lower in height (unknown cause).	
3	Island vegetation	The vegetation is overgrown; contains coconut, pandanus (used for weaving mats and in cooking), mango; pigeon, megapode (<5) and wild fowl.	
4	Water quality	Important to maintain the fish and reef species. A water quality check occurred once in the past. The current quality is unknown.	
5	Cultural	We have cultural sites – large flat rock (Panuluan stone) on northern side of the island. It is very unique. Pregnant women sit on the stones and this will produce a tall child. We have a traditional spear which is made from a cane type plant (like bamboo) found only on this island. Coconut plants (yellow, short species) are rare – they were brought in by the original settlers and even today the milk is used in initiation ceremonies.	

Table 3. Checklist of values/benefits

Not important 0; Important 1; Very important 2; Don't know DK

How important is the protected area for each of the listed values/benefits?	Score (0,1,2, DK)	Comment
1. Biodiversity – the presence of many different kinds of plants, animals and ecosystems	2	Many species of coral and fish. Breeding area for fish and octopus; several other species observed including crabs, shell fish, beche de mer, dolphins, sharks, birds and island vegetation. Jenkins (2002a,b) reported that Madang Lagoon contained >800 reef species, representing 57% of the reef species in PNG and 14% globally.
2. Presence of rare, threatened, or endangered species (plants and animals)	2	Previous research has highlighted the presence of rare crabs and fish species. While there have been no recent counts to identify these species, the habitat still remains important for them.
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	The reef ecosystem has been reported to contain very high diversity of both coral and fish species and invertebrates (Jebb & Lowry 1995), with several endemic fish and rare crabs. The island ecosystem is also important to retain.
4. Protecting clean, fresh water	2	The reef water quality is good, although there has been no recent monitoring.
5. Sustaining important species in big enough numbers that they are able to survive here	2	The WMA is a breeding ground for several species e.g. octopus, fish. There is collaboration with Sinub and Tab WMAs through the Madang Lagoon Association and this makes the effective size of the WMA larger.
6. Providing a source of employment for local communities now	0	
7. Providing resources for local subsistence (food, building materials, medicines etc.)	2	Provides fish, crabs, octopus, crayfish, sea shells for personal use (turtle and dugong are not eaten now). Coconut fronds are also collected for a range of purposes (e.g. mats, cooking). Coronus material is removed and used for paths in the mainland settlement.
8. Providing community development opportunities through sustainable resource use	2	At the moment there is no community development linked to the WMA, but the landowners have several plans for their WMA, mainly based around developing their tourism potential to enable funding of a range of necessary community projects.
9. Religious or spiritual significance (e.g. tambu places)	2	Important stones on the island.
10. Plant species of high social, cultural, or economic importance	1	The bamboo that is used to make spears is found only on the island and is important; and pandanus is used for mats and baskets and cooking.
11. Animal species of high social, cultural, or economic importance	2	Mainly fish for protein and incomes and also some crabs and bait fish.
12. Attractive scenery	2	Very attractive e.g. sandy beaches and reef.
13. Tourism now	0	
14. Potential value for tourism in the future	2	Intend to engage more with Madang Tourism to develop tourist potential.
15. Educational and/or scientific value	2	There was a recent French research expedition that indicated the importance of the area for research.
16. Maintaining culture and tradition on customary land and passing this on to future generations	2	Maintaining traditional subsistence practices (related to fishing and collecting) are important, as is retention of language.

Part 3: What are the threats to the protected area?

Table 4: Threats to the protected area

- H** High significance threats are seriously degrading values. This means they are badly damaging some value –it might be a kind of animal or plant, or your traditional gardens
- M** Medium threats are having some negative impact – they are damaging values but not so badly
- L** Low threats are present but not seriously damaging values
- 0** N/A where the threat is not present in the protected area or where something is happening but is not threatening the values at all

Threat type	Score (H,M,L,0)	Notes
1.1 Housing and settlement	M	People from the mainland frequent the WMA and cause destruction of the habitat (e.g. walking on the reef, collecting from the reef, damage from boats etc). Mainly occurs every weekend (perhaps 30-50 people each day on the weekend).
1.1a Population increase in the protected area community	M	As above.
1.2 Commercial and industrial areas	H	We are next of the Pacific Marine Industrial Zone (PMIZ) and there is waste disposal from ships (e.g. bilge water and oil). There are plans to build a floating dock and this may restrict the current movement in the Madang Lagoon (especially during floods). We fear that the waste will flow to the island – this is already happening. We see floating oil on the sea; some corals are dying; and there are dead fish floating on the water. The tuna company (RD Tuna) is causing impact. Ramu Nico was identified as pumping their tailings’ waste into the ocean. The representatives stated that there was a court case which the community won, but then the national government changed the environment laws and this allowed the mine to go ahead.
1.3 Tourism and recreation infrastructure	0	
2.1 Customary land owner and community gardens and small crops	0	
2.1a Drug cultivation	0	
2.1b Commercial plantations	0	
2.2 Wood and pulp plantations	0	
2.3 Livestock farming and grazing	0	
2.4 Marine and freshwater aquaculture	0	
3.1 Oil and gas drilling	0	
3.2 Mining and quarrying	H	Ramu Nico deep sea bed mining and the entry of tailings into the WMA waters was viewed as a major potential threat. The lack of water quality monitoring has meant that the community has been unable to track changes in the quality of water in their WMA.
3.3 Energy generation	0	
4.1 Roads and railroads (include road-killed animals)	0	
4.2 Utility and service lines (e.g. electricity cables, telephone lines)	0	
4.3 Shipping lanes	L	Local boats travel from Karkar Island to our island. In the future there will be increased numbers of ships (as a result of the PMIZ) and this may cause a problem.
4.4 Flight paths	0	
5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict)	0	
5.2 Gathering terrestrial plants or plant products (non-timber)	0	
5.3a Logging and wood harvesting for local/customary use	0	
5.3b Logging and wood harvesting – commercial logging	0	

Threat type	Score (H,M,L,O)	Notes
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	H	When the WMA was established there were strict controls on fishing and the removal of resources. No fishing was permitted within the WMA. Due to population increase in the area, many people come from the mainland to take resources from the WMA. We find it difficult to punish the offenders, although there were processes in place after gazettal when one of the NGOs was funding some level of enforcement. The laws and penalties are set by the Local Level Government at the ward level (through the Organic Law). The village courts also set limits on the amount of penalties that can be applied (i.e. max of K1000). It would be beneficial if the fines collected were sufficiently high to act as a deterrent and if the fines collected were equitably distributed to the WMA to assist them with management.
5.4b Fishing, killing and harvesting aquatic resources for commercial use	M	Fish, octopus and many other marine species are removed (line fishing, net fishing, spearing). While this is contrary to the rules of the WMA, the customary landowners lack the capacity to control this illegal take.
6.1 Recreational activities and tourism	H	The island is quite small, and the area where visitors can land and recreate is much smaller and this focuses the impact mainly on the sandy beaches on the western, northern and southern sides of the island. Impacts on reef result from reef walking and collecting and boat anchorage. This causes loss and damage to coral and subsequent loss of species. On the land people come to recreate on the fringing beach and in the edge vegetation. They will cut trees, walk on the island and make fires.
6.2 War, civil unrest and military exercises	0	
6.3 Research, education and other work-related activities in protected areas	L	The researchers take samples of coral and other species and the landowners are unclear about what they do with these samples. The results are generally not well communicated to the community and are not effectively integrated into management.
6.4 Activities of protected area managers (e.g. construction or vehicle use)	0	
6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors	H	They cut trees and write their names on the trees and take the octopus is a non-traditional way.
7.1 Fire and fire suppression (including arson)	H	Fires do escape and it has caused damage to some vegetation (e.g. coconut) especially in the dry season.
7.2 Dams, hydrological modification and water management/use	0	
7.3a Increased fragmentation within protected area	0	
7.3b Isolation from other natural habitat (e.g. deforestation)	0	
7.3c Other 'edge effects' on park values	0	
7.3d Loss of keystone species (e.g. top predators, pollinators etc.)	0	
8.1 Pest plants	0	
8.1a Pest animals	L	Crown of thorns is found mainly on the branching coral and sandy area. There were many in the past on the western side, but the numbers now are lower.
8.1b Diseases such as fungus or viruses that make native plants or animals sick	0	
8.2 Introduced genetic material (e.g. genetically modified organisms)	0	
9.1 Household sewage and urban waste water	H	The mainland uses sea toilets.
9.1a Sewage and waste water from protected area facilities	0	

Threat type	Score (H,M,L,O)	Notes
9.2 Industrial, mining and military effluents	H	Tuna factory waste is pumped directly into a stream which enters the lagoon. The upcoming PMIZ may also result in effluent. Ramu Nico has tailings effluent.
9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides)	L	There is some effluent from agriculture and forestry.
9.4 Garbage and solid waste	H	There is a lot of plastic and other waste that reaches the island from the mainland and boats disposing of their waste in the Lagoon.
9.5 Air-borne pollutants	L	Tuna factors produces a very bad smell that affects the customary landowners.
9.6 Excess energy (e.g. heat pollution, lights etc.)	0	
10.1 Volcanoes	0	
10.2 Earthquakes/Tsunamis	0	
10.3 Avalanches/Landslides	0	
10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes)	H	The island is subject to ongoing erosion. About 20m of the island has been lost on the eastern side. This is due to changing currents and higher sea levels as a result of climate change. The currents are changing and cause the movement of the sand. We have noticed a change in the currents and the wind direction – coming more from the SE/NE but this varies according to the season. A small 'haus win' has been lost due to erosion. Sediment also is entering the lagoon area and has the potential to impact on the coral reef.
11.1 Habitat shifting and alteration	L	
11.2 Droughts	L	Dry periods are longer and if there is fire it may impact on the vegetation.
11.3 Temperature extremes	L	There is no measuring of the temperature, but the landowners think that there are increasing temperatures that may impact on the water temperature and affect the reef.
11.4 Storms and flooding	H	Storms generate increased waves that result in island erosion and loss of trees. However, the number of storms is thought to have decreased, but their intensity is greater.
11.5 Coral bleaching	H	About 60% of the reef has been affected by coral bleaching. In the 1980s the reef was very colourful, but now it is mainly white. The reef in the deeper water is in better condition.
11.6 Intrusion by saltwater into gardens etc.	0	
11.7 Sea level rise	H	The impact is felt all over the island.
Other (please explain)		Benson (2012) noted ocean acidification as a threat to Madang Lagoon.
12.1 Loss of cultural links, traditional knowledge and/or management practices	0	The flat stone is still used by pregnant women.
12.2 Natural deterioration of important cultural site values	0	
12.3 Destruction of cultural heritage buildings, gardens, sites etc.	0	
Other (please explain)		

Table 5. Worst threats and ways forward

Threat No.	Threat (Most significant first)	Threat number or name (copy no. from Table 4)	Nature of the threat, impact and how to reduce the impact.
1	Climate change (SL rise, coral bleaching, storms)	11.4,11.5,11.7	Sea level rise may cause us to lose the island. There is rapid erosion. We would like to build a rock sea wall to stop the loss of the island. About 60% of the reef is bleached
2	Effluent/pollution	9.1, 9.2,9.3,9.4	Oil from ships, other industrial (e.g. RD Tuna Company) and agricultural effluent. There is also increased garbage and human effluent. Impacts are loss of coral species and fish, reduced water quality, impacts on human health.
3	Population increase	1.1a	This is the basis of many changes e.g. sewage waste, garbage, increased visitation.

Part 4: What is the management like in the protected area?

Table 6. Management effectiveness scores, comments, next steps

Issue	Score (0,1,2,3, NA)	Comment	Next steps
1a. Legal status	3	Legally gazetted WMA.	
1b. Legal status			
2a. Protected area regulations	2	There were some laws that existed before about special tambu areas and these were respected. Because of inter-marriage and population increase these traditional laws are no longer in use. There are some regulations under the Management Plan but lack of funding has meant that it is difficult to implement them. There was monitoring and enforcement before, but not now.	We need to review the Management Plan and enforce it. There will need to be an increase in the penalty fees for infringements to the laws. Secure funding would enable us to employ a ranger to patrol the area and also increase awareness in the community.
2b. Protected area regulations			
3. Law enforcement	1	There is some capacity (people have been trained by former NGOs) but the main issue is the lack of budget and equipment.	
4. Protected area objectives	2	There are objectives stated in the Management Plan, but the no-take zone is not enforced. Some management occurs e.g. taking rubbish from the island, or burning rubbish, signage to remind visitors of the values of the site and occasional punishment of those who break the rules (i.e. with the village court).	
5. Protected area design	1	Although the WMA is small in size, it does help to protect several unique and rare species. Through the Madang Lagoon Association we are connected with other WMAs in the Lagoon and we share ideas and work together.	

Issue	Score (0,1,2,3, NA)	Comment	Next steps
6. Protected area boundaries	1	The boundaries are known, but people enter the WMA and utilise the resources.	We would like to keep the intruders out to maintain the values of the WMA, especially the fish breeding areas. We need on-ground rangers to help with day to day management of intruders. Signage in the water (on floaters) would be useful to indicate the boundaries of the WMA and the rules that apply.
7. Management plan	1	A management plan was developed after gazettal, but is no longer implemented due to funding limitations.	The Management Plan needs to be revised.
7a. Planning process	0	There is no formal review process to address the landowners' views.	
7b. Planning process	0		
7c. Planning process	0		
8. Regular work plan	0	A work plan was developed (through Mama Graun funding) and involving monitoring and evaluation in Madang Lagoon. Lack of funding has meant that the work plan is not being revised or implemented.	
9. Resource inventory	1	Some of the landowners have undertaken training to help them to better understand the WMA. There is occasional fish counts by the owners.	It is important to have more information about the WMA e.g. fish numbers, breeding and reef health, removal of crown of thorns, addressing climate change and shoreline erosion.
10. Protection systems	0	Most patrolling ceased when the funding stopped. Now many people come to the island, especially on weekends. The community is unable to stop this entry.	
11. Research and monitoring	0	Research was conducted in the past, but currently there is nothing.	
12. Resource management	1	Occasional management occurs.	
13a. Staff numbers	0	There are no staff.	
13b. Other people working on the protected area	1	The Management Committee does not meet and there are no people working for the WMA.	
14. Training and skills	2	There has been some training and there are some skills in the community. This focussed on eco-tourism, monitoring, reef check and writing of funding applications. There is a lack of communication among all levels of government and the community.	Training is needed in several areas through small grant funding e.g. writing funding applications, administration, ranger training, budgeting, IT and assistance from the Provincial Government is need to provide advice on funding opportunities.
15. Current budget	0		
16. Security of budget	0		
17. Management of budget	NA		

Issue	Score (0,1,2,3, NA)	Comment	Next steps
18. Equipment	1	GPS, fish trap, tape measures, underwater board.	We need a boat, computer, and small office space. We need to work through the Provincial Government and District Government to identify the sources of funding. Working with the Madang Lagoon Association will also be important.
19. Maintenance of equipment	3	All equipment is maintained.	
20. Education and awareness	0	In 2008 there was an education program. Only the women and young boys were involved.	Awareness raising is very important i.e. within the WMA and the surroundings. The Provincial Government and CEPA could help to raise awareness of the WMA.
21. Planning for land use or marine activities	0	There is little awareness of future developments.	The government should inform and engage the landowners about the potential impacts of development and seek their input.
22. State and commercial neighbours	1	There is little cooperation. Major industrial neighbours have been taken to court previously.	
23. Indigenous people/ Customary landowners	2		
24a. Impact on communities	0		Need to meet and communicate more frequently with all levels of government, especially and district level.
24b. Impact on communities	0		
24c. Impact on communities	0	The WMA management is inactive and there has been little progress. They may be supportive if there was some investment.	In the future the Madang Lagoon Association may be the unit for management.
25. Economic benefit	2	Fish are sold in the market – the WMA is used as a breeding area for fish.	The community would like to expand its eco-tourism opportunities. This would require some visitor facilities (guest house/home stay) and an entry fee.
26. Monitoring and evaluation	0		
27. Visitor facilities	0		
28. Commercial tourism operators	0		We would like to have contact with commercial operators and hotels to arrange suitable tourism to the WMA and to share the fees.
29. Fees	NA		
30. Condition of values	2		
30a. Condition of values	0		
30b. Condition of values	0		
30c. Condition of values	0		

Part 5: Condition and trends of protected area values

Table 7. Values, condition and trend

Key value (from Table 2)	Condition Score (VG, G, F, P, DK)	Trend Score (I, S, D, DK)	Information source and justification for Assessment and HOW the condition can be IMPROVED
Reef ecosystem	G	S	No recent research; need to revise Management Plan and work collectively with other WMAs in the Lagoon.
Sea grass	G	S	No recent research; need to revise Management Plan and work collectively with other WMAs in the Lagoon.
Island vegetation	G	S	No recent research; need to revise Management Plan and work collectively with other WMAs in the Lagoon.
Water quality	G	S	No recent research; need to revise Management Plan and work collectively with other WMAs in the Lagoon.
Cultural	VG	S	Cultural practices are important, but under threat.

Table 8. Recommendations and ways forward

1.	2.	3.	4
Funding is need to undertake monitoring and enforcement and equipment.	Develop the eco-tourism potential of the WMA. This would involve discussions with the Madang Visitors' Bureau, cruise ship operators and some of the commercial operators and to develop a web presence (i.e. to advertise the features of the WMA).	Seeking assistance to identify the best solution to the erosion on the western and southern part of the WMA and then identify funding sources to implement the most effective solution.	Investigate the option of amalgamating our WMA with others in the Madang Lagoon to have more effective management outcomes e.g. collaborative monitoring, research, equipment, planning and training.

Table 9. Strengths and challenges (facilitator/recorder synthesis)

	Strengths	Challenges
1	The WMA is in collaboration with other WMAs in the Madang Lagoon through the Madang Lagoon Association.	Working collaboratively with other WMAs and communities with important marine environments within the Madang Lagoon.
2	Reef remains in relatively good condition, although this is difficult to assess without recent monitoring.	Obtaining needed resources to effectively patrol and enforce planning and management rules.
3	Currently supports the community's livelihood and is an essential resource.	

References

Jebb, MHP & Lowry, JK. 1995. Natural History of Madang Lagoon with an appendix to collecting localities. Records of the Australian Museum, Supplement 22, 1-24.