

Part 3. Management Plan

Introduction

The management actions of Bonaire National Marine Park can be divided into three groups.

1. Actions relating to the core functioning of the marine park. These are the day to day activities without which the marine park could not exist. These activities are briefly described and included in the work plan and outlined.
2. Actions which respond to the issues identified for the management of the marine park.
3. Actions which respond to the external issues or threats and conflicts facing the marine park.

This section of the management plan will address each of these in turn before making further recommendations which have been identified as part of the management planning process. For completeness, at this point it is worth re-stating the mission and the goals of the Marine Park which will be satisfied to some extent by the actions outlined in this part of the management plan.

MISSION

TO CONSERVE AND MANAGE THE NATURAL, CULTURAL AND HISTORICAL RESOURCES, ALLOWING THEIR SUSTAINABLE USE FOR THE BENEFIT OF CURRENT AND FUTURE GENERATIONS.

GOALS

1. MAINTAIN AND/OR RESTORE THE ECOSYSTEMS, BIOLOGICAL DIVERSITY, AND ECOLOGICAL PROCESSES
2. MANAGE THE MARINE PARK AS A REGIONALLY AND GLOBALLY SIGNIFICANT AND SUCCESSFUL MULTI-USE MARINE PROTECTED AREA.
3. ALLOW USE OF THE MARINE PARK BY PROMOTING NON DESTRUCTIVE ACTIVITIES AND WORKING WITH STAKEHOLDERS TO ESTABLISH GUIDELINES AND REGULATIONS TO MINIMIZE IMPACTS ON THE ENVIRONMENT.
4. PROTECT AND/OR RESTORE THE CULTURAL AND HISTORICAL RESOURCES IDENTIFIED AS SIGNIFICANT

Marine Park management activities

The following list describes the current functioning of BNMP in terms of the day to day activities it carries out. In places, projections are made to illustrate how the component might develop in an ideal world. Much of the information was ascertained through a consultation with the STINAPA board, Management and Staff.

Staffing

Current staffing levels are considered insufficient; ideally BNMP would like to function with:

- Manager
- ***Assistant manager***
- Chief ranger
- ***Project manager***
- 7-8 rangers – ***fully qualified and trained***

Those in bold and italic represent the staff that are lacking. BNMP shares the following office staff of STINAPA with Washington Slagbaai National Park

- Director STINAPA
- Accountant
- Communications officer
- Receptionist
- Multi task operative
- Cleaner

Two consultants are being used by BNMP:

- D. MacRae, Director, Coastal Zone Management UK
- Kalli De Meyer, Executive Director, Coral Resource Management

Around 20 Volunteers can be depended on to help with monitoring and some outreach, clean up dives, and maintenance.

Equipment

With an increase in staffing levels, a matched increase in equipment would be required, though there is a lack of funding for both.

Facilities

The facilities that would ideally be improved or included in BNMP are:

- Improved workshop for maintenance
- Lockers and staff area improved
- 'Downtown' location for STINAPA offices in the long term, small gift shop or visitor centre with information would be ideal in the short term.

Training

Planned training includes 2 rangers to qualified to Advanced Open Water, 3 rangers to rescue diver. There are also some planned ranger exchanges with St. Eustatius. Ideally the rangers would be able to take part in the following skills development courses, although at present they are not available

- IT for rangers
- Communication skills (including underwater)
- Boat handling skills
- General water skills
- Tourist guide course especially communication
- Further ranger exchanges

Financial budget

See Appendix 23

Interpretation and education

Currently 3 education courses are running:

- Junior rangers – with Jong Bonaire
- Aspiring ranger – with Centro di Bario Nord Saliña (younger students)
- Tortuganan di Boneiru – snorkel programme for school kids

Monitoring and research*

2 monitoring programmes are currently running within BNMP:

- Carrying capacity monitoring for the use of the buoys
- Coral reef fish survey and coral transects (AGRRA)
- Nutrient monitoring organised by MINA involving samples of algae taken from key sites and analysed for their constituents.

Future research needs may include:

- Reef restoration programmes research e.g. with the Reefball pilot project
- Sedimentation study in critical areas where the government has ideas for development.

Maintenance

Rangers carry out maintenance, mostly on cars, boats, gear buildings and moorings. An improved maintenance area would be beneficial to the work done.

Surveillance

Patrols are carried out daily by boat and on land. The objectives are to control activities in sensitive zones and to gathering information.

Enforcement

Possible crimes are detected during patrols or through contact from an external source. Poachers are stopped and everything involved with the crime is confiscated, then a legal case is started, occasionally the attorney is contacted.

Evaluation of success

The success of BNMP is monitored every 6 months as part of the Dutch Caribbean Nature Alliance Management Success Project. The results are presented in a report and posted to the DCNA website. The most recent report can be seen in Appendix 24.

Year core activity Plan 2006

Activity	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Human Resource													
1.1 Hiring new personnel													
1.2 Training personnel													
1.3 Fund raising workshops													
1.4 Staff meetings													
1.5 Daily human resource management													
1.6 Volunteer program													
1.7 Non Governmental Organizations (NGO)													
1.8 Reporting													
Equipment													
2.1 Office equipment													
2.2 Car													
2.3 Monitoring equipment and monitoring program													
2.4 Maintenance													
Infrastructure													
3.1 Research center and lodges													
Law enforcement													
4.1 Special police power-course													
4.2 Nature ordinance													
4.3 Enforcement													
4.4 Communication and cooperation with authorities													
4.5 Commissie Marine Milieu (CMM)													
4.6 Communication and cooperation with stakeholders													
Nature													
5.1 Monitoring													
5.2 Waste water treatment facility													
5.4 Fish Protected Areas (FPA)													
5.5 Coastal development guidelines													
5.6 Lac management plan													
5.7 BNMP management plan													
5.8 Coastal clean-up													
5.9 World Heritage Nomination (WHN)													
5.10 Research													
5.11 Communication and cooperation with stakeholders													

Activity	Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Education													
6.1 Turtuganan di Boneiru													
6.2 Junior Ranger Program													
6.3 Other Nature and Environmental Education (NME) -activities													
Public relations and information													
7.1 Update website information													
7.2 STINAPA-newsletter													
7.3 E-mail drops													
7.4 Press releases													
7.5 Communication and cooperation with stakeholders													
7.6 Requests for info													
7.7 Seminars and workshops													
Finance													
8.1 Tag sale													
8.2 Fundraising													
8.3 Grant request													
8.4 Budget													
8.5 Moorings													

Work schedule overview 2006

The headings and actions are not placed in order of priority.

	HEADINGS	ACTIONS	TIME FRAME	FINANCES (NAFL)
1 HUMAN RESOURCE	1.1 Hiring new personnel	1 x ranger	By May	1 x 36,700 =
		Project Manager	By May	57,000.- (incl. 2,000.- recruitment costs)
	1.2 Training personnel	Ranger Course	Ongoing	3,000.- GP
		Special police powers course		
		Managers trainings, upgrading workshops and/or other educational activities	Ongoing	
	1.3 Fund raising workshops			
	1.4 Staff meetings	BNMP-staff meeting	Weekly	none
		STINAPA full staff meeting	Monthly	none
	1.5 Daily human resource management	Management team meeting	Weekly	none
	1.6 Volunteer program	Meeting with Chief Ranger	Ongoing	none
		Meeting with Director and Managers individually	Ongoing	none
		Scheduling	Ongoing	none
		Keep personnel files up to date including vacation days	Ongoing	none
		Supervise personnel	Ongoing	none
	1.7 Non Governmental Organizations (NGO)	Evaluation of personnel	Yearly	
		Input on revision of evaluation system	By March	
		Contribute to STINAPA Integrated Plan and Budget for 2007 (includes set up of BNMP-budget, Budget notes, Investment plan and Work Plan)	By August	
		Work Plan 2007	By October	
Organization and coordination of volunteer projects, (annual) meetings and provide feed back.		Ongoing	3,000.-	
Organize Monitoring teams. Coral, fish, sedimentation.				
1.8 Reporting	Meet with national and international NGOs	Regularly		
	Contribute to the STINAPA Year Report 2005	Yearly		

	HEADINGS	ACTIONS	TIME FRAME	FINANCES (NAFL)	
2. EQUIPMENT	2.1 Office equipment	High Definition screen, Slides scanner	By January	5.000	
	2.2 Car	2 x double cabin pick-up trucks in the first half of the year and 1 extra the second half	2 x by March 1 x by September		
	2.3 Monitoring equipment and monitoring program	Multiparameter sensor + field material for AGRRRA monitoring + Sediment traps + lab material. Organization of AGRRRA workshop on Bonaire in 2006 (May/June?)		15,000.-	
	2.4 Maintenance	Vehicles (4)		Ongoing (weekly + garage schedule)	13,000.-
		Moorings		Ongoing	In budget
		Boats		By August	In budget
		Properly maintain all other tools and working material		Ongoing	
		Repair lookup room		By June	?????
3	Infrastructure 3.1 Research center and lodges	Set up a plan for realization of a STINAPA research center and accompanying lodges	By December		
4. LAW AND LAW ENFORCEMENT	4.1 Special police power-course	(also see 1.2)			
	4.2 Nature ordinance				
	4.3 Enforcement	Patrolling		Ongoing	
		Supervise construction activities in the BNMP		Upon occasion	
	4.4 Communication and cooperation with authorities	Supervise research in the BNMP		Ongoing	
		District Attorney, Police, SSV, Customs, Coast Guard, Polis Ambiental, DROB		Ongoing	
	4.5 Commissie Marine Milieu (CMM)	Advice CMM on matters concerning the marine environment		Monthly	
4.6 Communication and cooperation with stakeholders	Involve, inform and cooperate with stakeholders and others in matters of law and law enforcement, during set up and implementation of management plans, research, monitoring, etc.		Ongoing		

	HEADINGS	ACTIONS	TIME FRAME	FINANCES (NAFL)
5. NATURE	5.1 Monitoring	Run reef monitoring program according to the schedule.	Ongoing	3.000
		Implement monitoring program for coral diseases, sedimentation, Diadema and dive site use.	By June	GP
	5.2 Waste water treatment facility	In cooperation with other parties continue working towards realization of the facility. Seek funding to add tertiary treatment stage to the facility	t.b.d.	none
	5.4 Fish Protected Areas (FPA)	Gathering information. Together with LVV, set a Catch landing monitoring program.	By September	none
		Set FPA's	By June	
	5.5 Coastal development guidelines	Proposal to BC + EBHAM made	By May	none
		Implementation	By October	none
		Monitoring FPAs and control areas	Ongoing	none
		Finalize guidelines	By April	GP
		Present to DROB and BC	By May	
	5.6 Lac management plan	Distribute and implement guidelines	By July	GP
		Implementation of Lac and Klein Bonaire management plan	Together with BNMP Management Plan	See 5.7
	5.7 BNMP management plan	Develop BNMP-management plan (including executive summary)	By April.	80,000.-
		Present to DROB and BC	By April	none
	5.8 Coastal clean-up	Implementation of BNMP management plan.	From July onwards	5,000.-
	5.9 World Heritage Nomination (WHN)	In cooperation with STCB, Tene Boneiru Limpi and Volunteers, organize Earth Day 2006.	By April	none
In cooperation with STCB, Tene Boneiru Limpi and Volunteers, organize International Clean up Day		By September	none	
WHN-preparation		Ongoing	Funding	
5.10 Research	Since Bonaire decides to change the nomination type, this has to go out of the plan.		Funding	
5.11 Communication and cooperation with stakeholders	Set up research programs	Ongoing	GP	
	Supervise and assist visiting researchers and/or students	Rising to the occasion		
	See point 4.6	Ongoing		
	Attend CURO meetings. Help to set up the Association of Snorkel Charters	Monthly		

	HEADINGS	ACTIONS	TIME FRAME	FINANCES (NAFL)
6. EDUCATION	6.1 Turtuganan di Boneiru	Lessons (5 weeks courses)	Ongoing	
		Snorkel and SCUBA club	Ongoing	
	6.2 Junior Ranger Program			
	6.3 Other Nature and Environmental Education (NME) -activities	In cooperation with Jong Bonaire and Sentro di Barrio Nord Saliña	On going	1000.-
In cooperation with the STINAPA-NME coordinator and STINAPA-volunteers		Ongoing		
7. PUBLIC RELATIONS AND INFORMATION	7.1 Update website information		Ongoing	
	7.2 STINAPA-newsletter	In cooperation with Washington Slagbaai National Park, the rest of STINAPA and volunteers set up an online news pamphlet and distribute hard copies twice a year.	Twice a year	12,000.-
	7.3 E-mail drops	Send bits of information, press releases, etc. to Marine Park tag buyers	2 to 4 times a year	
	7.4 Press releases		Ongoing	
	7.5 Communication and cooperation with stakeholders	See point 4.6	Ongoing	
	7.6 Requests for info	Handle requests (phone, e-mail, fax, etc..)	Ongoing	
	7.7 Seminars and workshops	Initiate and attend workshops and seminars	Ongoing. See 2.3	
8. FINANCE	8.1 Tag sale	Distribute tags to dive shops	Ongoing	none
	8.2 Fundraising	Raise additional funding whenever budget is insufficient	On going. In 2005, BNMP create a "Fish of the Bonaire National Marine Park" t-shirt collection. Create more material to sell in WSNP and other outlets.	
		8.3 Grant request	Work out the NOAA application for the monitoring program	Ongoing
	8.4 Budget	Set up BNMP-Budget for 2006 (including an investment plan)	By September	
		Revise BNMP-Budget 2005	By August	
	8.5 Moorings	Guard the BNMP-budget	Ongoing	
Supervision of collection of commercial and private mooring fees		Yearly		
Supervision of execution Harbour Village contract to manage public moorings				

Key Issues and actions

The key issues facing BNMP have been identified following stakeholder input, strategic planning and one further threat analysis carried out for The DCNA Management Success Project. The following actions are considered critical for BNMP to deal with. These need to be the focus of Marine Park management activities to ensure the future success of the marine park, and to pursue the mission and goals of the marine park.

Management

NEED FOR AN INTEGRATED APPROACH TO COASTAL ZONE MANAGEMENT.

Bonaire is surrounded by fringing coral reefs which means that everything which happens on the land directly and immediately impacts on the island's fragile coral reefs. Whilst the Marine Park has been able to deal effectively with impacts and issues originating within the marine environment at the present time the Marine Park's jurisdiction ends at the high water mark and it is unable to deal effectively with land based impacts. Therefore whilst Bonaire's marine environment is well regulated and managed the coastal zone is not.

For the Marine Park to effectively protect the island's marine assets an integrated, holistic approach to the sustainable development of the island is essential. **This can only be achieved if the marine park is a made consultee for terrestrial developments, and any advice the marine park offers is taken as definitive.** To achieve this recognition BNMP needs to successfully lobby the government and legal authorities. This needs to be done on two levels.

Actions

- **Petition the Island Government to address the lack of integrated coastal zone management on Bonaire.**
- **Educate the Island Government and other stakeholders about the value of Bonaire's marine resources, their fragility and the impacts of land based development and pollution on Bonaire's fragile fringing reefs.**

NEED FOR COMPREHESIVE ONGOING OUTREACH TO ALL STAKEHOLDER GROUPS

Outreach is an essential part of informing the public, visitors, stakeholders and other interested parties about the affairs and successes of the Marine Park. Successful outreach programs strengthen the position of protected areas on a number of fronts and lighten the workload of the Marine Park in the long run.

Actions

- **identify stakeholder groups**
- **identify the relevant information to distribute**
- **identify the method of communication**
- **carry out communications**

Use a simple structured communication strategy as suggested on the next page.

Further notes:

Stakeholders should be consulted more often and in a structured fashion to increase the feedback that the marine park receives. For example, suggestions have been made for a bi-monthly meeting at a set location with all stakeholders who wish to take part to identify key issues which BNMP can also use as a marketing and update platform.

Fees outreach.

- Boost awareness amongst stakeholders about the new fees system
- Carry out more checks of tags, especially of other water sports at Lac.

Awareness programmes

- Target the government, fishermen, and windsurfers/kiteboarders first.
- Share ideas about the marine park with presentations from both parties, updates on legal issues, guidelines and rules etc.
- New outreach locations should be established at the Harbour and ports, Airport, on Cruise Boats
Other outreach location suggestions include: laundrettes, supermarkets, shops, bars, restaurants, stall for cruise ships.

Dive orientations

- Orientations should be standardised though a video, and
- Those giving orientations should have an update on marine park affairs twice yearly.
- An incentives or awards programme for those professionals and visitors taking part should also be established, for example, badges or formal recognition as a Marine Park Warden for dive professionals

Passive/informal outreach

- Established at the airport, especially information about the user fee, rules and regulations
- Rangers of the marine park should also play a more public role through formal and informal presentations and guided tours for visitors and locals alike.
- Build on the current DIVA GIS system produced by the WWF to establish georeferenced maps for the BNMP website to help with outreach.

International partners.

- Build relationships with international partners, including universities with student/staff that may want to carry out research in BNMP and conservation organisations. Contact the partners and offer them outreach materials or subscription to a newsletter.

Outreach strategy for Bonaire National Marine Park

GROUP	DETAIL	OBJECTIVES	WEBSITE	LIST SERVERS	ANNUAL REPORT	NEWSLETTER	E-NEWS	BROCHURE, LEAFLETS	SIGNAGE	PRESENTATIONS	MEETINGS	PRESS /TV/RADIO	MANAGEMENT PLAN
Government	Governor, commissioners,	Promote: nature as good business and its value to the island economy	◆		◆	◆	◆	◆		◆	◆	◆	◆
Government departments	DROB, DEZA, LVV, JAZ	Developing practical solutions to conservation and management issues	◆		◆	◆	◆	◆		◆	◆		◆
Tourism	Tourism Boards, FCCA , associations, trade shows, fam trips, airlines, travel agents, resorts	Establish BNMP as a premier dive and watersports destination in the Caribbean and the role of conservation	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆
Local Watersports	Dive operators, wind/kite surfers, kayakers, sailors, power boaters, fisherfolk etc	Emphasis the need for practical hands on conservation effort on the part of the industry to protect the reefs and their role	◆		◆	◆	◆	◆	◆	◆	◆	◆	
Tourists	Visiting tourists,	Importance of marine conservation and visitor role in conservation management	◆			◆	◆	◆	◆	◆		◆	
Volunteers	Local and international volunteers	Muster continued interest through involvement and active feedback	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆
Research Institutions	International, regional	Stimulate relevant management orientated research into issues of interest to BNMP	◆	◆			◆			◆			◆
Private sector	Companies, individuals, business associations	Value of the marine park (to their business) and fund raising	◆		◆	◆	◆	◆		◆	◆	◆	
Islanders	Islanders, especially special interest groups such as fishermen	Stimulate interest in BNMP, educate about conservation management and build support for management decisions				◆	◆	◆	◆	◆	◆	◆	
Funders	Current/future funders, AMFO, foundations, individuals	Build donor confidence in BNMP and donor cultivation	◆	◆	◆		◆			◆	◆		◆
International conservation	Regional institutions, international NGOs, conferences	Promote conservation management activities and build relationships with other similar initiatives	◆	◆			◆			◆	◆		
Local Education	Schools and school children	Educate about the marine environment and need for conservation	◆			◆	◆	◆	◆	◆		◆	

External issues

PROMOTE SUSTAINABLE DEVELOPMENT / CONVERSION OF LAND USE

Unsustainable development on Bonaire is the most serious threat to the islands resources. Thoughtless landscaping and building near the waters edge, and even inland, causes sedimentation and nutrient enrichment of the reefs. This destroys the basis of the marine ecosystem and featureless algae covered reefs take the place of thriving, colourful coral ecosystems. Recommendations have been made by the governments' economic department to keep building more hotels to cope with the demand for rooms. The following steps should be taken to make sure any more development has as little impact as possible:

Actions

- **Organise the construction guidelines:** The guidelines should be brought up to date and reviewed. The associated outreach materials, posters, stickers, press releases should also be reviewed.
- **Establish an Incentive programme:** Formulate an incentive programme for the guidelines using recognition e.g. green Flamingo programme. Decide on how companies/individuals qualify and what the benefits to them will be
- **Market the guidelines:** Publish advertisements in the press, involve stakeholders at every stage, in particular the construction industry
- **Publish the construction guidelines:** launch the construction guidelines at an event designed to bring in support – presentation, invite important people and a 'star' representative.
- **Monitor success:** monitor the success of the programme through stakeholder meetings to get feedback and also observe changes in construction practice.
- **Maintain the profile of the programme**
- **Launch associated programmes;** for landscaping and smaller scale builds.

REDUCE NUTRIENT ENRICHMENT

Nutrient enrichment from poorly treated waste water treatment units causes algal growth on Bonaire's coral reefs. Nutrients also come in a cocktail of other substances. As the number of people visiting Bonaire increases even more sewage waste will be produced.

Actions

- **Raise awareness** through press releases and Radio about the impact of nutrients on reefs – explain the process in simple terms and its effect on the economics of BNMP
- **Pursue the planned waste water treatment plant:** Keep involved at the highest level with the planned plant, by liaising weekly with DROB and the government, ensure that the plant will be effective by cross-consulting the plans with external reviewers.
- **Grey water use:** Raise awareness of the uses of grey water by publishing fliers and press releases/radio programmes to tie in with the construction guidelines from above.
- **Treatment effectiveness:** Encourage people through outreach to check the effectiveness of their wastewater treatment method, and update;
- **Lobby the government** for contributions to treatment upgrade programmes for people not serviced by the new planned plant.

REDUCE POACHING

The poaching of turtles and conch from Lac and other areas of the marine park continues to be an issue. Turtles are an endangered species and their capture is illegal on Bonaire. Conch stocks are close to collapse as very young individuals are removed from their habitats at Lac and other locations.

Actions

- **Increase outreach:** Involve the local fishermen in the turtle tracking programme and surveys. Commission a conch survey led by the fishermen. Reinforce the idea of protecting stocks to make them sustainable. Facilitate meetings between STCB and the fisherfolk. Produce press releases, and radio programme releases. Encourage members of the public to report illegal catches.
- **Increase patrols:** Increase patrolling particularly at weekends in the mornings when poaching is most often spotted.
- **Set catch limits:** Set a minimum landing size for conch to prevent juveniles being taken
- **Set enforcement methods:** Issue permits to fish for conch of a set size, and if people are caught with undersized conch, the permits are revoked (this will also hopefully muster a sense of ownership and self-policing)

MANAGE ARTISANAL FISHING FOR LONG TERM SUSTAINABILITY

Reef fisheries on Bonaire have been in significant decline for a number of years. Target species include grunts, groupers and other large predators. Large herbivores such as Parrot fish are not targeted on Bonaire. These target species are non-migratory and they have very slow reproductive rates. As the fish grow their ability to produce eggs increases exponentially (at an ever increasing rate). These facts along with the amount of fishing effort going into the artisanal fisheries mean that the stocks have no time or space to recover.

Actions

- **Stakeholder presentations.** Use information gathered to date to prepare multiple format presentations. Use not only Power point and visual graphics but also models and simulations of the decline of fisheries, and the benefits of FPA's. Use the report prepared by Steneck et.al. (2005) as a source for scientific references especially pages 75/76.
- **Stakeholder consultations/involvement.** Get feedback from fishermen and watersports operators about the role of FPA's. Involve stakeholders in monitoring programmes from the beginning. Organise fish catch monitoring, have a subsidy for returned undersized fish which are measured and put back
- **Set up fish protected areas.** Identify areas with stakeholders, especially fishermen and watersports operators, where no take zones can be established. Combine no take zones with other zones such as kite surfing, no anchoring, coral seeding, research area etc.
- **Include a wide geographical area in the decision making.** Include the whole island (not just the West coast) in the FPA planning process, including Lac and Klein. Consider other zones that can be located in FPA's e.g. kayaking, turtle protection zones for feeding and nesting.

Recommendations

The following list of recommendations addresses other issues that have arisen during stakeholder consultation and prior to the development of this management plan. The main issues and action plans have been identified in the previous section. The following suggestions need to be addressed if human, physical and financial resources allow and at the next management plan review.

Zoning Plan

The only legally recognised zones on Bonaire are the Marine Protected Area as a whole, from the High Water Mark to the 200 ft depth contour, and the Reserves at Karpata and Playa Funchi. Through the stakeholder input in January 2006 and considerable effort towards establishing fish protected areas, the need for a clear zoning plan was ascertained. Zoning plans have become into common use in planning of natural areas. Through a properly designated zoning scheme, potential conflicts between users can be minimised and in the same time provide optimum protection of endangered natural areas or species. Motivations listed for zonation of natural areas are:

- When marked conflicts between activities exists, for example between tourism and traditional fisheries.
- If there are current or potential conflicts between the conservation objectives of the area and other possible activities.
- If there are unique habitats or cultural features present
- If there is a need to provide specialised or quality services for a group(s) of park users.

A holistic zoning plan should be written to consolidate the function and positioning of the current zones and to address current conflicts of use. Thought must be given to a hierarchical system of 'zones' with specified uses and rules, through a spectrum of control from strict no-use areas through to single use areas and multiple use zones. In the light of these criteria and identifications made, a number of possible zones have been suggested for Kitesurfing, Power boats, Fish protected areas, various zones in Klein Bonaire and Lac as well as an extension of the marine park to 12 nautical miles.

Zone	Rationale
Kitesurfing	Kitesurfing is a very fast growing sport, with those taking part willing to travel and spend considerable amounts of money to pursue it. The windy conditions on Bonaire are ideal for the sport. Kitesurfing has been banned from Lac for safety reasons. The only Kitesurfing business on Bonaire now uses a location in the South of the Island. Since TCB (Tourism Corporation Bonaire) recognised Kitesurfing as a new industry on Bonaire it requires a fixed area where it can be practiced safely and in a regulated fashion. The kite surfing operator on the island has put forward a positioning document that can be seen on Appendix 18.
Power craft zone	Concern over wash from power boats and individuals travelling too fast near the shore have raised safety issues. A power boat zone and regulations over who can rent the boats, types of craft and engine size restrictions are recommended
Fish Protected areas	Extensive work has already been carried out into the establishment of Fish Protected Areas around Bonaire, where fishing is prohibited. This approach to protecting fish stocks has been proven to increase stocks as the FPA acts as a seeding area for surrounding waters.
MPA extension	An extension of the marine park to include deeper waters to the extent of the Territorial Waters of Bonaire at 12 nautical miles.
Buffer zone	Terrestrial buffer zone a specified distance landward of the marine park, to offer some protection to turtle nesting and some option for consultation over coastal development

Table 1: Recommended zones for BNMP

Zone	Rationale
Klein Bonaire	Klein Bonaire is used extensively by visitors to the islands and locals as a place of recreation. The coral reefs around Klein Bonaire attract divers and snorkellers and fishermen alike. The island is also a hotspot for turtle nesting and feeding (for further information , see Sea Turtle Conservation Bonaire Annual Report, Appendix 25). The government (DROB) have already been working on a zoning plan for Klein Bonaire (Appendix 26), which would be most effective if worked into a management plan for Klein Bonaire, within the structure BNMP management plan.
Lac	Lac is used extensively by visitors to the islands and locals as a place of recreation. The seagrasses and mangroves in Lac attract kayakers and snorkellers, swimmers, windsurfers and fishermen alike. Lac is also a nursery for reef fish and a feeding ground for turtles. Considerable thought has already gone into the Lac Management plan and zoning options for the bay have been put forward (see Appendix 27). These would also be most effective if worked into a management plan for the whole of Lac, within the structure BNMP management plan.

Table 22 Continued

Where possible, the grouping of zones should be arranged. For example, is a kite surfing zone is to be established, perhaps the area could be a no-diving zone in places, fish protected area, no anchoring zone etc, especially as the south of the island is considered to be a seeding zone for coral juveniles from Les Aves and Los Roques. At every stage stakeholder input, especially the fishermen and water sports operators, must be sought.

Management Plans for Lac and Klein Bonaire

Management plans are required for Lac and Klein Bonaire. Lac has very distinctive management issues in terms of use (fisheries, watersports) and conservation (mangroves, seagrass and coral reefs). The current Lac management plan does not address the pertinent issues effectively although it does go some way to recommending a new zoning strategy. Klein Bonaire also has its own issues as it is used by many visitors and tour operators, it is a hotspot for turtle activity and the land mass is under the control of the marine park.

Conservation Value

The conservation values of the marine park need to be established and stated in detail. This includes detailed species lists and a database with photographs which should be available through the website and detailed descriptions of the Ramsar sites of Bonaire as well as values of other important environments such as the Karst systems and the algae dominated reef on the windward shore. Such information should be made available through a GIS platform. The development of such a project should include stakeholder input at every stage with the possibility of establishing a committee with the government, NGO's local people and others to decide on which resources are significant, especially in relation to historical and cultural resources. The values list presented in this management plan would be a good starting point for further investigations.

Monitoring and Review

A robust and strategic programme for monitoring the marine park activities, the progress of actions and the health of the natural resources needs to be established. CARICOMP data is no longer collected; AGGRA should continue to be collected. REEFCHECK is carried out by volunteers twice a year. Historical monitoring and research should be summarised and made readily available, especially in the fields of fisheries and nutrient/sedimentation pollution. An up to date list of published scientific literature can be seen in Appendix 28. It would also be very useful for STINAPA to enrol a volunteer to catalogue it's own extensive library and literature into bibliographic database software such as 'ENDNOTE'.

Appendices

- 1** Ramsar Site Details
- 2** Economic Analyses
- 3** Bathymetric Chart of the ABC Islands
- 4** Species Lists
- 5** Cetacean Study
- 6** Lac Aerial Photographs and Maps
- 7** Bonaire AGGRA study
- 8** Mangrove species of Bonaire
- 9** Red List and CITES classifications
- 10** Stakeholder meeting minutes and presentation
- 11** Policy Plans
- 12** Marine Environment Ordinance
- 13** EBHAM's (Extra Legislation)
- 14** Brochures and signage used by BNMP
- 15** Staff evaluation Forms and House Rules
- 16** Mooring construction diagram
- 17** Questionnaire responses and related documents
- 18** Kiteboarding Bonaire Positioning Document
- 19** Bonaire Tourism Statistics
- 20** BNMP Tag sales Records
- 21** Strategic Planning Documents
- 22** Pressures Analysis
- 23** BNMP Financial Budget
- 24** DCNA Management Success Report 04-05
- 25** Turtle Club Bonaire 2005 Year Report
- 26** Klein Bonaire Zoning Plan
- 27** Lac Management Plan
- 28** Endnote and WORD references for BNMP
- 29** Demonstration and WHS status details

Part 4. Additions and Developments