

Socioeconomic training and monitoring in the community-run Velondriake Network of Marine Protected Areas in SW Madagascar

1. Project Summary

The overall aim of this project is to establish a socioeconomic training and monitoring programme in the Velondriake Community-Managed Marine Protected Area (MPA). Velondriake is located in the Andavadoaka region of SW Madagascar, spans more than 800-square kilometres, and benefits more than 6,500 people in 25 villages. It protects coral reefs, mangroves, seagrass beds and other threatened marine and coastal habitats. Socioeconomic research is required to measure the impacts of the newly created MPA and in particular to enhance the effectiveness of the community management. These data will help in particular the Velondriake community management committee, as well as conservationists working elsewhere in South West Madagascar, to develop strategies that ensure local support and success of for Madagascar's MPAs.

2. Project Objectives

2.1 Overall Objective:

To establish socioeconomic monitoring in the Velondriake MPA.

2.2 Specific Objectives:

- To build local capacity to do socioeconomic research, both that of the local Velondriake community as well as that of Malagasy scientists, so as to establish sustainable socioeconomic monitoring of Malagasy MPAs.
- To expand and develop previous socioeconomic monitoring within Velondriake to the remaining villages and so enhance community-management of the MPA.



3. Achievements during this reporting period

This section reports against the specific project objectives listed above. As the objectives 1 and 3 of the original grant application overlap these are reported together under 'Building local capacity for socioeconomic monitoring'.

3.1 Building of local capacity for socioeconomic monitoring

- Two Malagasy scientists, graduates of the local marine science institute, the IHSM, were trained to competently carrying out socio-economic research within Velondriake thanks to the projects training and support. They were recruited in November 2008 and underwent a five day training in socio-economic research from the 14 – 18 November 2008. The Principal Investigator (PI), Gildas Andriamalala, conducted the training sessions with the support of Garth Cripps, the project coordinator in Andavadoaka. This training covered all aspects of the CORDIO WIO SocMon guidelines including survey methods and data collection, and followed the CORDIO WIO SocMon training methods and standards. In January 2010, a further 2 students from the Institut d'Halieutique et des Sciences Marines (IHSM) were trained to be socio-economic surveyors by Bienvenue in Tulear, Holy Heriniaina Andriamitantsoa and Vahamampionona Rakotarisoa. These surveyors carried out a survey regarding the size and importance of the marine curio trade in Tulear as part of a larger study being conducted by the Marine Conservation Society (UK). Later, these surveyors will conduct control surveys in and around Tulear for comparison with the Velondriake area.
- BV has trained three Velondriake management committee members (Velondriake Supervisors) and four young community members (Community Assistants) in socio-economic monitoring. They are now integral members of the socio-economic research team. The three Velondriake Supervisors – local leaders who have been active in creating and managing Velondriake - will assist BV to carry out the monitoring, but in particular to help disseminate results to the community. Through the Velondriake committees' active involvement in the research they are building their know-how and gaining a full understanding of the outcomes. As such they are better equipped to assimilate and act on them. The four young Community Assistants, who are members of the local community but are not part of the Velondriake management committee, will be more active than the Velondriake Supervisors in the actual surveying so as not to introduce any bias.
- Four community members now form the socioeconomic monitoring team, led by Blue Ventures' Socioeconomic Coordinator, Bienvenue Zafindrasilivonona:
 - Edgar Andronic – a former fisherman from the village of Lamboara, he is now trained in socioeconomic monitoring, data entry and is president of the children's club (Apombo) in Lamboara.
 - Joeline Jean-Baptiste – a former sous-collecteur from Andavadoaka, she is now trained in socioeconomic monitoring and is a peer educator as part of sexual and reproductive health workshops.
 - Danitsaiky William - a former fisherman from Andavadoaka, he is now trained in underwater reef monitoring, socioeconomic monitoring and data entry.
 - Dominique Razafisana – a former fishermen from Andavadoaka, he is now trained in socioeconomic monitoring and data entry.

3.2 Development and expansion of socioeconomic research program within Velondriake

3.2.1 Socioeconomic program

A list of all surveys carried out during the project period are listed below:

- Velondriake survey 1: to ascertain knowledge and support for Dina (local laws governing the MPA), assess barriers to the removal of destructive fishing gears from the MPA and to assess target audience's stage of behaviour change with regard to enforcement of the MPA Dina.
- Velondriake survey 2: to acquire feedback on the effectiveness of local leaders at transmitting information back to local communities after regional meetings and to assess community perceptions of current marine resource management efforts.
- Octopus opening day survey: to assess community perceptions of octopus no-take-zone openings (most important marine management events of the year) and to gather data on problems during closure period (theft from reserves, poison fishing, poor weather etc).
- Economic value of marine reserves: to measure the economic benefits of management efforts in order to make the case for replication of the MPA in other areas of Madagascar.
- Community-Based Monitoring (CBM) feedback: to assess the sustained message of CBM work (open-ended questions) and to monitor the impact in terms of diffusion of knowledge of our Community Based Natural Resource Monitoring Programme.
- Family planning (FISA): to ascertain and assess the baseline for contraception use within the MPA and reasons for not using family planning.
- Velondriake survey 2: Part 2: This was a follow up on the first Velondriake survey in order to assess changes in frequency of illegal fishing following a number of educational activities and negotiations between community leaders and fishers using destructive gears. Attitudes towards the dina (local community law) enforcement were also measured.
- Community-Based Monitoring (CBM) feedback: to assess the sustained message of CBM work (open-ended questions) and to monitor the impact in terms of diffusion of knowledge of our Community Based Natural Resource Monitoring Programme (ongoing from last period).
- Projet d'Appui aux Communautés des Pêcheurs de Toliara (PACP) Project: Baseline demographic, standard of living and perceptions of resource use surveyed in four villages south of the Velondriake area. This survey will serve as a baseline for further interventions by Blue Ventures and Velondriake to expand marine management outside of the Velondriake area as part of the Bank of African Development funded, PACP project which aims to recreate the Velondriake community management structure throughout the SW of Madagascar.
- Marine Curio Trade: This study seeks to understand and measure the importance of the trade in marine curios (shells, turtle carapaces, etc) in the Western Indian Ocean. The principle investigator trained two surveyors in the city of Tulear for this project.

3.2.2 Information, methods and preliminary results

All surveys were carried out using the same standard SOCMON methodology as laid out in '*Socioeconomic Monitoring Guidelines for Coastal Managers of the Indian Ocean (SocMon-WIO Manual), 2006*'. Sample sizes differ according to the purpose of the survey with small samples chosen for "quick feedback surveys" (QFS) which were carried out in order to provide the Velondriake Management Committee with timely, useful information that could be used to measure the impact of interventions, judge communities reaction and change course (see 4.2 Adaptive management below). These surveys are noted with the code QFS.

Larger sample sizes of 5% of the adult population were used for more rigorous studies which will be incorporated into published reports and research papers. Summary findings are listed below for each of the surveys carried out. More

detailed results can be provided to NOAA upon request. Note that data analysis and report production are still underway for all non-QFS surveys. As these reports and articles are published, they will be provided to NOAA.

- Velondriake survey 1: to ascertain knowledge and support for Dina (local laws governing the MPA), assess barriers to the removal of destructive fishing gears from the MPA and to assess target audience's stage of behaviour change with regard to enforcement of the MPA Dina.

This survey found that most of the Velondriake population is in the pre-contemplation stage of behaviour change with regards to enforcement of the Velondriake Dina (see figure 1 for a summary of the behaviour change model). Nearly all of those surveyed showed a comprehensive knowledge of local fishing regulations. The majority reported knowing about the Velondriake Dina, however those reporting not to know about the dina did show knowledge of the prohibited activities within the MPA.

The survey also revealed a number of barriers to dina enforcement including, confusion over who is responsible for enforcing the dina, confusion of the dina enforcement procedures, and a widespread perception that it is better to for individuals to avoid conflict with destructive fisherman rather than attempt to enforce the dina.

The survey also found that the Velondriake Association, Blue Ventures, and village elders are trusted by a strong majority (more than 70% of the population). The Madagascar Ministry of Fishing (Minister de Peche) and its employees were generally not trusted (55% of the population), however this is much more widespread trust than we anticipated based on informal interviews.

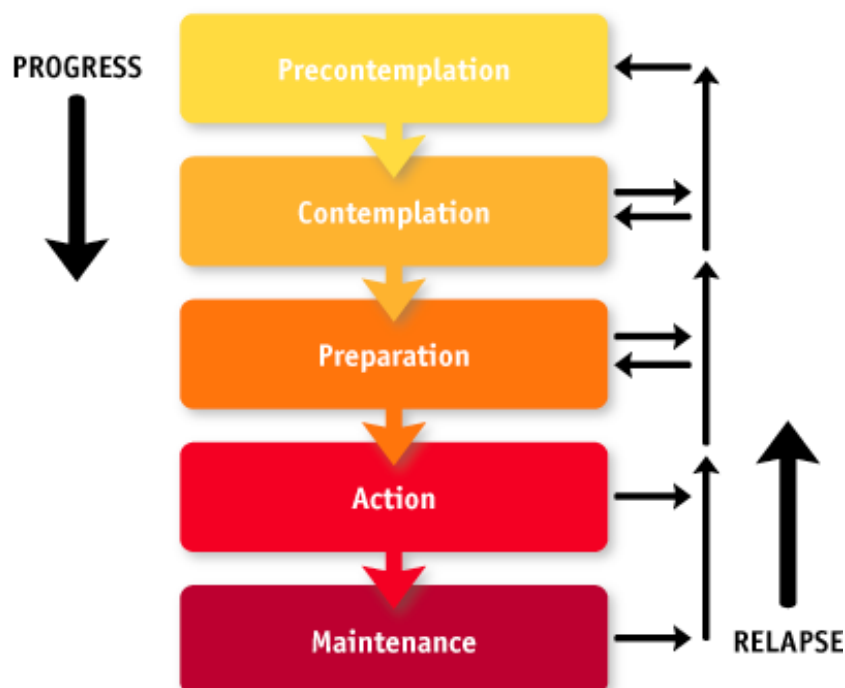


Figure 1: A Summary of the behaviour change model (Prochaska et al. 1994¹).

¹ Prochaska JO, Velicer WF, Rossi JS, Goldstein MG, Marcus BH, et al. 1994. [Stages of change and decisional balance for 12 problem behaviors](#). *Health Psychol.* 13(1):39-46.

- Velondriake survey 2 (QFS): to acquire feedback on the effectiveness of local leaders at transmitting information back to local communities after regional meetings and to assess community perceptions of current marine resource management efforts.

This survey found that local leaders are generally ineffective at transmitting all but the most basic information back to local communities. Opening and closing dates for temporary reserves was the only information consistently received by the community through local leaders.

Feedback on community resource management efforts showed that a large majority of people approved of marine reserves. However, despite the success of reserves, nearly everyone perceived marine resources to be in decline compared with 5 years earlier.

- Octopus opening day survey: to assess community perceptions of octopus no-take-zone openings (most important marine management events of the year) and to gather data on problems during closure period (theft from reserves, poison fishing, poor weather etc).

This survey found a high correlation between unsuccessful reserve openings and a widespread belief that poaching had been a problem during the reserve closure. This has led us to believe that most reserves fail because they are not respected by all the villagers. As a result, Velondriake make reserve surveillance and capacity building of committee members a top priority. A number of meetings were held to discuss the problem and leadership training was given to all committee members. After the next reserve openings, the number of unsuccessful reserves declined to 1 out of 10 as compared to 3 out of 8. A second survey carried out after this opening found community perceptions of reserve poaching to be much diminished.

- Economic value of marine reserves: to measure the economic benefits of management efforts in order to make the case for replication of the MPA in other areas of Madagascar.

This survey found temporary octopus reserves to be very popular with fishermen of all ages and both genders, with nearly everyone believing that reserves produce real economic benefits to them and their family.

- Community-Based Monitoring (CBM) feedback: to assess the sustained message of CBM work (open-ended questions) and to monitor the impact in terms of diffusion of knowledge of our Community Based Natural Resource Monitoring Programme.

This QFS found that the CBM project is having a high degree of success spreading messages to a wide audience throughout each village surveyed. CBM events and messages were widely recalled weeks and months after the initial event with community members retaining a high positive opinion of this project and ready to participate in further CBM activities.

- Family planning (FISA): to ascertain and assess the baseline for contraception use within the MPA and reasons for not using family planning.

This survey showed a significant impact of Blue Ventures educational and health interventions in the Velondriake area. In Andavadoake, where these activities have been ongoing for the longest period of time, villagers were more knowledgeable about the risks of unwanted pregnancy and STI's, were more likely to use family planning services, and held less negative opinions of family planning interventions.

The survey also identified gaps in public knowledge about family planning and key demographics (especially women under 18) who are not well informed about the benefits of family planning. This survey has been used by BV to create a social marketing campaign for improved sexual and reproductive health in the Velondriake region.

- Velondriake survey 2: Part 2: This was a follow up on the first Velondriake survey in order to assess changes in frequency of illegal fishing following a number of educational activities and negotiations between community leaders and fishers using destructive gears. Attitudes towards the dina (local community law) enforcement were also measured.
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4. Summary of project outcomes to date

The project has so far achieved a number of the key outcomes detailed in the grant application:

- Created a well trained and experienced socioeconomic monitoring team capable of rapid and accurate SOCMON data collection.
- Three Regional workshops held to discuss Velondriake Management Plan and incorporate survey findings into planning.
- Participatory Velondriake Management Plan created based in part on community input from surveys, and in part on information gathered during regional workshops.
- Pioneered a new approach to SOCMON which uses quick feedback social surveys to aid MPA decision-making.
- Integrated results of surveys into 5 meetings of the Velondriake Management Committee and the annual general assembly meeting.
- Set baseline for two social marketing campaigns allowing for rigorous analysis of campaign impacts.
- Provided important, actionable feedback to MPA decision-makers regarding the causes of underperformance for temporary octopus reserves.
- Provided feedback to Velondriake's community-based resource monitoring team that allowed them to better tailor their key messages so as to be more relevant and memorable to audience members.
- Built capacity of Velondriake to carry out adaptive management of natural resources based on trustworthy feedback from the wider community.

5. Major constraints, challenges or changes in context

The onus of the research has changed from gathering baseline socioeconomic data to concentrating on MPA management and community-based natural resource management issues. This is justified in that previous surveying of a representative sample of villages has already established a socioeconomic baseline for Velondriake at its establishment. Repetition of this surveying over long term will demonstrate benefits of the MPA to the well-being and wealth of the people. The present goal of socioeconomic research needs to be focused on making community-management of the MPA actually work and to monitor and evaluate the effectiveness of this. This socioeconomic programme has, and will continue to, address these needs. BV has experienced some obstacles in implementing this project, which affect the community-based monitoring and the dissemination of results more than the scientific surveying:

The level of education in Velondriake is low and there are a limited number of people who possess enough academic training to meaningfully participate in the scientific level of monitoring. Most of the few young people in Velondriake who possess an adequate education have left (or plan to) the Velondriake area to pursue their studies or to find work in Tulear. BV has however found a few talented young people who are constantly resident within Velondriake and are endeavoring to give them enough incentive to stay long term.

Similarly the low literacy rate within Velondriake villages limits the number of villagers able to assimilate the results of the monitoring and ultimately the extent to which a villager-led monitoring program can be established. BV has evolved the data presentation to visual methods such as slideshows and video that is more accessible to people who are partially literate. However, the only sure way of making the monitoring data and results widely available is through regular village meetings and face-to-face explanations.

There are other practical limitations to implementing timely socioeconomic monitoring program within Velondriake. For example, the management committees should meet at least once a month and BV initially scheduled monthly meetings for the committees. However, the committee members found this too frequent and were only able to meet every six to eight weeks. During these meeting they must address all matters regarding the management of the MPA as well as socioeconomic monitoring. In addition there is no radio or telephone coverage in most of Velondriake and a number of villages can only be reached by sea. To arrange a meeting invitations must be hand-delivered at least a week before the proposed meeting.

6. Plans for continuation of the socioeconomic model developed

6.1 Continued adaptive management through SOCMON

The SOCMON monitoring program will continue into the foreseeable future with regular surveys in order to further support the Velondriake community in their efforts at adaptive management. All surveys will be repeated every 1-2 years in order to measure changes in public perceptions and the effects of further management interventions in the region.

6.2 Establishment of adequate temporary and permanent NTZs

In February 2010 the third successful coordinated opening of temporary octopus NTZs opened in Velondriake after a 3 month closure. The next period will see the Velondriake community decide upon the official dates for the austral winter closure, normally between June and September.

The first permanent marine reserves closed in September 2009 and May 2010, a further 4 sites will be closed over the next 6 months.

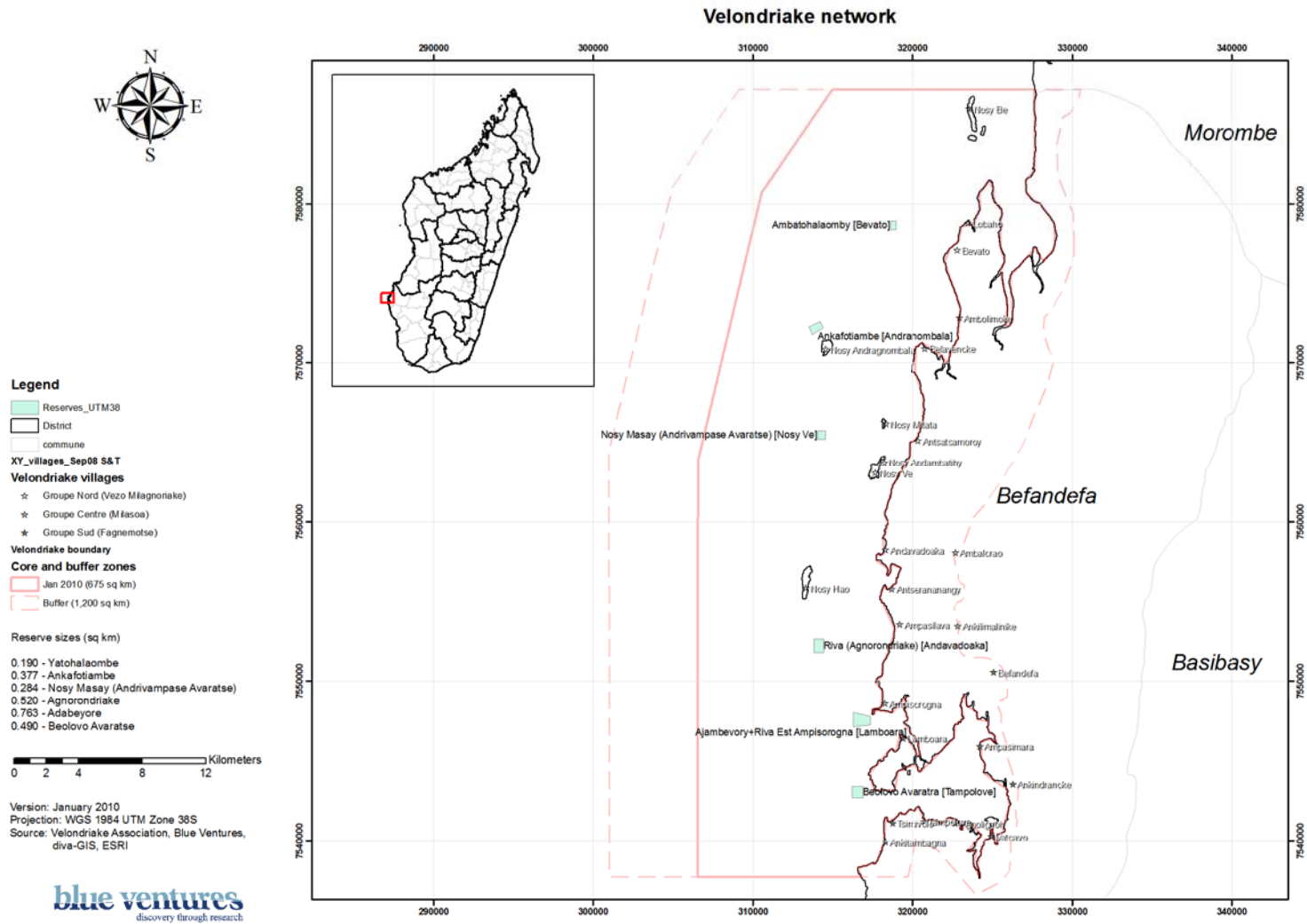
6.3 Respect of the MPA laws

Increasing the knowledge and respect for the local Dina has formed part of a major year long behaviour change campaign starting at the beginning of November 2009. The campaign aims to empower local communities to take pride in their own marine resource and fishing laws, and to provide them with the tools necessary to monitor and prevent any illegal and unwanted fishing activity. At the completion of the campaign in November 2010 a second survey will be launched for comparison with the baseline to measure the impact of this campaign.

6.4 Creation of alternative livelihoods

This is beyond the remit of the present project and furthermore would only be of utility if BV was in the process of implementing a specific alternative livelihood project eg. a micro-credit scheme.

7. Appendix 1: Map of Velondriake



7. Appendix 2: Photos



Community-based monitoring contestants in Ankilimalinike



Community-based monitoring teachers in Ankilimalinike



Joeline Jean-Baptiste



Danitsaiky William



Dominique Razafisana



Edgar Andronic

Socioeconomic training and monitoring in the community-run Velondriake Network of Marine Protected Areas in SW Madagascar

1. Financial Breakdown (1st October 2008 – 31st March 2010)

Expense item	NOAA (\$)	Other (\$)	Total (\$)
Personnel			
Experiences Social Scientist to coordinate project	7849.67	25191.29	33040.96
Locally trained scientists	6474.00	0	6474.00
Travel			
Boat and 4x4 transfers between Velondriake	2394.39	8714.65	11109.04
<i>Per diem</i> allowance	346.97	0	346.97
Supplies			
Computer equipment	0	772.52	772.52
Stationary expenses	174.83	0	174.84
Teaching materials	22.80	0	22.80
Communication	2.00	0	2.00
Other (<i>Fuel, boat, ropes, paint, quadrats</i>)	3054.83	11114.06	14168.89
Other			
Printing	277.66	1110.63	1388.29
Data preparation and training	56.45	0	56.45
Dissemination of results and meetings	296.15	1184.59	1480.74
Other (CBM monitoring)	407.64	0	407.64
Grand Total	21357.39	48087.74	69445.14

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