

2008-2009

**WSB-NOAA Vanuatu Leatherback Monitoring
and Outreach Activities**



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Background

Wan Smolbag Theatre (WSB) has been working with rural communities in Vanuatu on sea turtle conservation issues since 1995. WSB used the approach of empowering communities through education to take ownership of and make informed management decisions for their own natural resources. Beginning with just a small number of rural communities on the island of Efate WSB collected as much information as possible about sea turtles, both from the scientific community and the communities themselves. This information was used to create a play about the plight of sea turtles in Vanuatu. WSB then toured the play around to the these communities in Efate and used it to start a dialogue within these communities about sea turtle conservation. This result was the foundation of the Vanua-Tai resource monitors network, a network of village-based volunteers doing conservation work within their communities. Fourteen years later there are more than Vanua-Tai monitors throughout Vanuatu.

Since 2004 NOAA and WSB have worked together several times to conduct nesting survey at Leatherback beaches in Vanuatu. In addition to the work with communities to survey nesting beaches WSB has been working for the past two years to compile a list of nesting beaches throughout Vanuatu. This list has a practical use for WSB as it allows us to identify which areas of the country should be visited next in order to expand the Vanua-Tai network.

Once those areas have been identified then WSB staff will tour those areas, going from village to village educating the communities about the work of the Vanua-Tai monitors and asking if they would like to designate a community member to represent them. These tours will often last 10 to 20 days depending on the number of villages to be visited. The tour will later be followed up with a workshop for all the new monitors. At these workshops the monitors will be provided with information and training to allow them to work within their community on turtle conservation issues (e.g. turtle life history, national laws concerning sea turtles, turtle tagging, data collection, nesting beach monitoring, etc.).

Activities Conducted

All potential turtle nesting sites marked on 1:50,000 topographic maps at May and June 2008 annual Vanua-Tai workshops.

During the first week of May 2008, WSB brought together sixty volunteer turtle conservation volunteers from coastal villages across the northern islands of Vanuatu for the first of two annual Vanua-Tai conservation monitors network workshops. During the first week of June 2008, WSB brought together forty volunteer turtle conservation volunteers from coastal villages across the southern islands of Vanuatu for the second of two annual Vanua-Tai conservation monitors network workshops. These workshops provide WSB staff the opportunity for one on one interaction with a select group of monitors each year. During the workshop information sessions provide the monitors with new information or training that enables them to better work within their communities to conserve sea turtles (e.g. refreshers on tagging and filling out data forms, updates on current regulations with regards to sea turtles, turtle life history information, etc.). These workshops also provided WSB to work with monitors to identify potential sea turtle nesting sites across the country.

Topographic maps (1:50,000 scale) were provided and monitors were asked to mark the location of known nesting sites on these maps and fill in an accompanying information sheet for each of these sites. From this exercise, the monitors identified 90 individual nesting sites (an additional 93 were identified at the previous annual workshop). A complete table of these sites is located in Appendix 1. This table includes the latitude and longitude of each site as well as the species nesting there and an estimate of numbers per year if that information is available.

This information will be very useful for the selection of future sites to conduct nesting surveys

At this time, WSB does not have the ability to electronically map the locations of the sites that were marked on the topographic maps using GIS. Alternatively the sites collected this year, in addition to those collected at the annual workshop last year, have been entered into Google Earth. This allows for a visual representation of the



Figure 1: Map of Vanuatu Nesting Beaches

nesting sites identified to date in Vanuatu (Figure 1). Nesting sites identified are marked in yellow, sites of nesting surveys this year are marked in red.

Tours and Workshop Trips

North Santo (Santo)

North Santo is the last geographical area to have resource monitors on the island of Santo.

The area has a total of around 20 scattered coastal villages. Due to its remoteness the peoples' livelihood is mainly based around their agricultural and farming produce with a moderate quantity of marine based resources.

The coast is fringed with batches of black sandy beaches and stones while every now and then rivers would wind down to the coast.

The NOAA funded north Santo monitors workshop was held from November 3-7, 2008 at Tolomako village. The workshop was the first of its kind to be held for the newly established monitors in the area.

Despite being a big area not all villages there designated a resource monitor to come to the workshop as only villages with or close to a beach were selected. This is so that the new monitors would be monitoring the beaches for turtle activities after the workshop. It was also envisaged that the new monitors would then assist the other communities in choosing their resource monitors.

There were 15 participants to the workshop comprising of both male and female monitors.

Workshop Activities

The actual workshop was conducted over a period of three days at the local primary school in the village of Tolomako. The village was the ideal meeting venue as there is a nesting site at the village beachfront and it was reported during the meeting that a nest has just been dug up the week before by some boys. Having the monitors meeting in the village therefore was welcomed by the new monitors as they hoped to stop egg poaching at the nesting site.

Turtle Information

For the duration of the workshop the new monitors were able to learn about sea turtles in detail. The general lifecycle of sea turtles was new to the monitors who find it rather interesting to also learn of other interesting facts about the life of sea turtles. Information like the 'lost years', how old a female turtle is before it is ready to reproduce, and how the temperature of the sand determines the sex ratio of hatchlings from a turtle nest were all new to the new monitors.

Apart from the information on life-cycle, the monitors were also informed about other facts about sea turtles such as their feeding and habitats, migration, identification of sea turtle species, threats facing the life of sea turtles, and measures that can be taken to conserve and manage sea turtle populations.

The new monitors were also informed about the new Fisheries Act and regulation which cover all sea turtle species in Vanuatu and other marine species.

Group Exercise on Turtles

A group exercise on turtles to find out about turtle information in the area presented the following results:

- The three common species of sea turtles in Vanuatu, namely hawksbills, greens and leatherbacks used to nest in the area. Today only hawksbills and greens come to nest.
- The last leatherback that was sighted to nest in the area was in the late 70's.
- People were still digging turtle eggs up to 2008 when the new monitors were put in place.

-There were no conservation measures in place to protect sea turtle in the area prior to the setting up of the new monitors.

-Not all coastal villages have nesting sites and only few have foraging sites as there are no reefs in the area.
Turtle tagging.

Turtle tagging demonstration was another activity that was conducted with the new monitors. In the exercise the new monitors were shown how to tag turtle flippers using applicators and metal tags and how to fill out the tagging sheets.

Exercise on Nesting Beach Survey

Since the workshop was conducted during a nesting season a practical on nesting beach was conducted with the new monitors. This was to provide them with some basic nesting beach survey methods that they could use to monitor their nesting sites over the nesting season.

In the practical the monitors were trained to:

-Mark out a nesting site and divide it into sectors to enable them to identify sectors of a beach with more nesting activities to work on.

-Look for required data that should be collected on a nesting beach during a nesting season.

-Conduct Hatchling success of turtle nests on a nesting beach.

Awareness Raising

At the end of the workshop the monitors did awareness on turtles to students from the village primary school. There were close to 30 pupils from years one to six plus their three teachers. It was the first time for the students to learn about sea turtles.

Conclusion

Prior to the workshop a tour to the coastal communities was carried out to set up new monitors who would be attending the workshop. The tour was carried out mainly by a boat with limited time on each site. Therefore even though the workshop was held a few days later not all communities visited were able to send in their monitors. It would be much better to spend more time in each community to do awareness and to assist each community in choosing a right person to be the monitor.

With the new monitors who managed to turn up for the workshop, it was a new experience for them as most of them have never been to one before. The opportunity was one they referred to as interesting and worthwhile as they come to know more and find new information about sea turtles.

Mavea and Tutuba (South Santo)

WSB staff arranged to conduct a nesting site survey training workshop with the monitors of Mavea and Tutuba islands after completing the workshop in north Santo. As can often happen here the workshop was not able to be conducted as planned due to a death of one of the monitor's brothers on the island of Tutuba.

As a result of the death it was not possible to conduct the training on the beach that had been identified as the preferred beach to do the work on, several of the monitors were also not able to attend and the training session had to be delayed. Because there was no money in the budget to make a return trip to Santo WSB went forward with a one day training session with the three monitors that were able to attend.

With the monitors WSB went through a session on measuring out their nesting beaches into appropriately sized sectors. Everyone then went through the data sheets that are used for collecting data when tagging turtles on the beach (Appendix 3) or recording the location of nests that have been located and excavating nests and counting how many turtle hatched successfully (Appendix 4). Once the group had gone through the data sheets they then searched the beach for nests that had previously been laid. These nests were used as examples to fill in the nest locations information on the data sheets.

Bonvor, Malvakal, Blacksand, Lamap, Amal, Crab Bay (South and East Malekula)

In December 2007 WSB did an initial tour to part of East Malekula. There had been reports that Leatherback turtles were nesting in this area and that communities were still eating both the turtles and their nests. During that tour WSB identified several villages where Leatherback turtles have been nesting.

The purpose of the current tour was, within an expanded area, visit villages that have been identified to have had Leatherbacks nesting and ask them to designate a community member to monitor their beach for nesting activity. While in the villages WSB also provided some education about Leatherback turtles to the communities.

The monitors in this area of Malekula have never had a workshop or any training from WSB at this point. For this reason WSB requested that they just monitor their beaches periodically during the nesting season this year and send back information on how many turtles were seen on the beaches this year. WSB staff spent some time with each new monitor on their beach to determine what was the best area for them to monitor. They also spent time with a set of sea turtle id cards so that the monitors would know how to use the cards when they encountered a turtle.

This tour will be followed up by a tour of north Malekula, in mid 2009. Then before the 2009-2010 nesting season begins a workshop will be held for all the new monitors from north, east and south Malekula. This workshop will provide the monitors with the information and training they need to conduct a complete survey of their nesting beaches.

Beach Surveys with Some WSB Staff Assistance

WSB staff members were able to work with three communities this nesting season to assist them with conducting a survey of their nesting sites. For these three sites WSB assisted with selecting and marking out the nesting beaches to be monitored, trained the monitors in the use of the data sheets, spent several nights surveying the site with the monitors, and then revisited the site late in the season to monitor that the data from the excavated nests were being collected accurately.

Tasiriki (Moso)

The village of Tasiriki has been working on a Hawksbill turtle nesting beach survey with WSB and an overseas eco-volunteer sending company, GVI, for three seasons now. The west side of the island of Moso is mostly uninhabited and still provides many good nesting sites. The beach that the community selected for the site of their survey is a white sand and rubble beach approximately 3.5 km long. While the beach is free of animal predators it has been subject in the past to villagers raiding the nests for eggs to eat or hatchlings to sell to a small resort on the island that runs a turtle 'head starting' program. Since the project has begun to generate an income for the village the community members have agreed to stop eating the eggs or selling the hatchlings.

The survey at this site generally runs 7 days a week from the beginning of October until the end of March (with 2 weeks off at Christmas). There are usually still some nests left to hatch after the eco-volunteers leave at the end of March so the community members continue to visit the beach once a week to collect nest data until all of the nests have hatched.

The survey at this site has been a bit of a learning process in order to have the project work for the community, the volunteers and WSB. As of this year the project seems to have hit its stride in that the groups are finding nearly all of the nests that are laid on the beach, the quality of the data collected is much improved and there were no nests that were taken this year. With just a small amount of assistance and no funding on the part of WSB (funding comes from the volunteers) it appears that this survey may be sustainable as a long-term protective measure for this beach.

For a summary of the data see Table 1 below.

Bamboo Bay (Malekula)

This is the second season that NOAA has supported the nesting survey work that is being done at Bamboo Bay on Malekula. The beaches at Bamboo Bay have been divided into 10 distinct beaches. They range from black sand to white sand to rubble. For the purposes of the survey WSB has worked with the local monitors to select two of the ten beaches to conduct the survey on, one black sand beach and one white sand beach.

This season there have been no Leatherback turtles recorded nesting. At the time of writing this report WSB has still not received the raw data collected during the nesting survey, instead we have just received a summary of the data. Unfortunately that summary does not break down the nests laid and turtles tagged by species. In the interim we have listed all of the data as being Green turtle, as most last year were Green, but a portion of these will actually be Hawksbill turtles. Once the data is received this report will be corrected to reflect the true numbers.

This season there have been three main problems encountered, dogs eating eggs, high water washing away nests, and a decline in the quality of the work being done. Dogs have been a problem at this site since WSB began working with the community on their nesting site. Last season WSB worked with the monitors to build bamboo grids to secure over the nests to protect them. Except in areas where the ground was very uneven this seemed to work quite well. Unfortunately when the community made the grids this year they made them quite a bit smaller than previously and as a result the dogs were able to dig under them and once again eat the nests. The problem was only discovered by WSB during their follow-up visit so it is something that will be specifically pointed out from now on whenever a beach training session is conducted.

As with most sites this year weather has had a detrimental effect on nesting success. Storms and high tides resulted in many nests being washed away both by the ocean and the river the cuts across one of the beaches being monitored. In addition to the nests that were washed away several nests close to the water didn't hatch after they were inundated multiple times with water.

There was also a decline in the quality of the data collected this year as the community decided that the survey would no longer be conducted by just the turtle monitors. While this idea is actually a good one, as it will spread the ownership of the project out within the community, it was perhaps not implemented as well as it could be. Ideally one of the turtle monitors should have always been working but paired with someone new from the community. But during the follow-up trip it was discovered that this was not the case so often it was a pair of people on the beach together who had not received any training directly from WSB. WSB is now aware of this and next season will do a training session with everyone in the community that is interested in taking part.

For a summary of the data see Table 1 below. Field reports from the site are in Appendix 2.

Wiawi (Malekula)

After this site was identified as a potentially significant nesting beach, during the 2007 annual workshop nest site mapping exercise, WSB made a quick scouting trip to the site at the beginning of last nesting season. Evidence found at the site resulted in it being included in WSB's nesting survey work this season.

As this is the first year WSB has worked with this community on nesting surveys the initial training session was two weeks long. In this time WSB worked with the community members to determine which beaches to select for the nesting survey, based on proximity to the village and numbers previously seen. Several sessions were spent on how to correctly fill out the data sheets. And then several nights were spent on the beach conducting the survey with the new turtle monitors.

As expected with the first season a community conducted a survey it was a good start but there are many issues that can be improved upon for next season. The survey this year faced problems from dogs eating the nests, bad weather washing away nests, and misunderstandings on how to collect and record data.

Dogs were an issue at this site. This can be corrected next season by building and installing bamboo grids over the nests. WSB is now aware it is an issue at this site and will work with the community to correct this problem next season.

Rough weather and high tides also a problem at this site in that many nests were washed away before they hatched.

When WSB returned for the follow-up trip it was evident that the turtle monitors would require further training on conducting nesting surveys. Many of the nests that had been located were not labelled or labelled correctly. This type of problem is definitely not restricted to this site alone. With the low literacy levels found in many rural villages this type of problem is common. However, while that nests may not have been labelled the monitors could remember exactly when they were laid so the nests were then labelled. As well none of the nests that had already hatched had been excavated to determine nesting success. So the WSB staff member took this opportunity to work with the turtle monitors to excavate all the nests that had already hatched to show them how to collect and record the data for this part of the survey.

This season there have been no Leatherback turtles recorded nesting. At the time of writing this report WSB has still not received the raw data collected during the nesting survey, instead we have just received a summary of the data. Unfortunately that summary does not break down the nests laid and turtles tagged by species. In the interim we have listed all of the data as being Green turtle, as the earlier reports from the site indicated it was mostly Green turtles nesting, but a portion of these will actually be Hawksbill turtles. Once the data is received this report will be corrected to reflect the true numbers.

For a summary of the data see Table 1 below. Field reports from the site are in Appendix 2.

Beach Surveys Run Solely by Communities

When WSB staff plan the work they intend to do during the sea turtle nesting season both money and manpower are the major constraints. The geography of the country means that it is very expensive to travel to each site. And the reliability of transport is such that it is possible to fly to one of the outer islands and then not be able to reach the final destination.

A second constraint is that there are only two staff members attached to the WSB turtle program. This means that they can only work with a very small number of communities each year during the sea turtle nesting season.

Taking these constraints into consideration this season WSB tried something new to increase the number of communities they are working with. WSB contacted the turtle monitors in two of the communities that have been conducting Leatherback surveys for several years now, Maranata and Votlo, and asked them if they felt they could conduct their survey without the assistance of WSB this nesting season.

Maranata (Ambrym)

The monitors at this site began their survey in November 2008 and continued through to January 2009. There were four monitors helping with the survey this season, all of which had previously helped conduct nesting surveys at this site. Over the course of the nesting season the monitors surveyed the beach approximately one night a week.

Over the past two years there have been no Leatherbacks nesting at this site. However, this year the Leatherbacks returned to the site and 12 nests were laid. Unfortunately none of these nests survived to hatching.

The 2008-2009 nesting season at Maranata was impacted by rough seas and high tides. As a result all of the nests laid at the site this year were washed away before they hatched.

Votlo (Epi)

Similar to Maranata, there have been no Leatherback turtles nesting at this site for the past two years. But like Maranata Leatherbacks returned to Votlo to nest this season. At this site the Leatherbacks began to nest very early this season, in early October. This is more than two months earlier than is typical at Votlo. Over the season thirteen Leatherbacks came onto the beach laying nests during eleven of those trips.

The nests at this site were impacted by two separate factors this season. The first was dogs. There have been no problems at this site in the past with dogs digging up turtle nests. This year however there was a single dog that dug up most nests after their first night of hatching. As a result the monitors were uncertain how many turtles successfully hatched from the nests. The number of hatchlings they reported were based on how many hatchlings they physically encountered on the beach rather than how many hatched eggs they found inside the nests.

In addition to the problem with the dog this site was also impacted by rough seas and high tides. This resulted in many nests being washed away before they hatched.

Another notable problem at this site was data recording. The village at this site consists of one extended family. The schooling that the family has received was not extensive and as a result their literacy level is very low. So while they are very capable of conducting a survey the data they recorded, for the most part, were incorrect. This required a WSB staff sitting down with the monitor from the site and going through all of the records with him to make the necessary corrections. During past surveys a monitor from another site, who is quite good at data collection, assisted with the survey. A conflict between the two meant that this arrangement was not possible this season. WSB is currently looking at various options to deal with this problem before the start of the next nesting season.

	Tasiriki	Bamboo Bay	Wiawi	Maranata	Votlo
survey start	Oct. 2008	Nov. 2008	Dec. 2008	Nov. 2008	Oct. 2008
survey end	Apr. 2009	Apr. 2009	May 2009	Mar. 2009	Apr. 2009
# Leatherbacks tagged	0	0	0	0	0
# Leatherback nests laid	0	0	0	12	11
# Leatherback nests hatched	0	0	0	0	6
# Greens tagged	0	48	0	0	1
# Green nests laid	0	219	38	0	24
# Green nests hatched	0	123	37	0	10
# Hawksbills tagged	53	0	0	0	0
# Hawksbill nests laid	147	0	0	0	15
# Hawksbill nests hatched	118	0	0	0	8
Total # turtles hatched	16,627	15,603	3,311	0	902

Table 1: Summary of 2008-2009 Nesting Beach Surveys

Communities Monitoring Their Beaches for Nesting but Have Not Received Full WSB Survey Training and Assistance Yet

In areas that WSB has recently toured or run initial nesting survey workshops some of the turtle monitors have been monitoring the nesting activities on their beaches. In most cases it means they have only visited their nesting beaches a few times during the season but this information helps WSB to fill in the knowledge gaps of where turtles are nesting and where to concentrate future nesting surveys.

Jereviu (North Santo)

The monitor in this area conducted a survey, with his wife, for 2 days a week for 2 weeks during December 2009. This was the first time they had ever done a survey of their beach. Over the time of the survey there were no eggs laid but one Leatherback false crawl. While there were no nests laid this season there were two laid last season. When asked about this the monitor said that it's normal at this beach for there to be gaps of 1 to 2 years with no nests laid on the beach. The monitor also commented that after awareness that he provided to his community, after attending a WSB workshop, there have been no problems with people eating turtles.

Blacksand (Malekula)

The monitor in this area conducted a survey from November 2008 to May 2009. Because he lives beside the nesting beach he was on the beach almost every day. This is the first time he has conducted a survey but there were no Leatherbacks this year. He did remember a Leatherback nested last year though. He thought that maybe no Leatherbacks had come on shore this year because of how rough the ocean had been. When asked about others in the village he said there was no pressure to eat turtles as the community is S.D.A. and eating turtle is against their religion.

Avunamale (Tutuba)

The monitor conducted a survey on his beach just two times this season. The beach that he was monitoring was on the far side of his island which is why he only went twice. During those surveys he located nine nests. He felt they were Green and Hawksbill nests but was not sure if there had been any Leatherback nests laid. All of the nests that were laid were dug up by people to eat. This monitor is quite new so had not done any work within his community before. After finding that people were digging up the nests though he spoke to the chief who then put a ban on going to that beach to fish or dig up turtle nests.

(Aore)

One of the monitors on this island, with two other people from her village, did a survey once a week from November 2008 to April 2009. It was the first time any of them had ever done a survey. While she said there had been previous nesting on the beach there were no nests laid this year. She suggested it was due to disturbance on the beach after land sales.

Hatbol (Malekula)

The new monitor at this site conducted a survey, with three others from his village, once a week from November 2008 to April 2009. One Leatherback came ashore at this site but didn't lay a nest. The monitor at this site felt that too much rain and bad weather was the reason that there were no Leatherback nests at this beach this season.

Mbangir (Malekula)

The new monitor at this site conducted a survey once a week from November 2008 to April 2009. The monitor noted Leatherback tracks on the beach twice this season but no nests. Last year there was Leatherback, Green and Hawksbill nests but this year nothing. He felt that too much disturbance on the beach was the reason there had been no nests laid. He also suggested there had been too much rain and bad weather that had washed away part of the beach.

Mabes (Malekula)

The new monitor at this site conducted a survey once a week from November 2008 to March 2009. The monitor found ten nests on his beach (unsure what kind) and while he had not dug the nests up he felt that they had all fully hatched. At this site the monitor says Leatherbacks only come to nest once every 4-5 years. Prior to becoming a turtle monitor he said that people in his village ate the turtles but now that WSB had come and given awareness the chief had put a ban on eating turtles.

Additional Leatherback Information

At the conclusion of the nesting season reports of nesting Leatherback turtles came in from two additional sites that were not being monitored. The first site was from a village in Malekula that has not been visited by WSB during their nesting survey training work the past two years. The report from that site indicated that a single Leatherback turtle nested at the site and that the nest hatched successfully.

A second report came in from Mele beach just outside of the capital of Port Vila. The report from this site indicated that the turtle attempted to come ashore at this site to lay but was disturbed by people and did not make a second attempt at this site. WSB has since spoken with the Fisheries Department about doing a joint workshop with the people from this area about the current regulations protecting the turtles and their nests. WSB also plans to work with those communities to establish Vanua-Tai monitors.

Financial report

See Appendix 5 for the financial record of the grant.

Appendix 1: Turtle Nest Sites Indicated by Vanuatu Turtle Monitors at 2008 Annual Workshop

Sheet #	Island	Lats	Longs	Green	Hawks	Leather	Log	Olive	# turtles
B1A	Mavea	15 22' 26.82" S	167 13' 05.18" E	y	y		y		3
B1B	Mavea	15 22' 23.58" S	167 13' 14.99" E	y	y		y		3
B1C	Mavea	15 23' 31.46" S	167 14' 16.60" E	y	y		y		3
B1D	Mavea	15 23'41.37" S	167 13' 59.54" E	y	y		y		3
B1E	Mavea	15 22' 59.54" S	167 13' 14.49" E	y	y		y		3
B2	Rano	15 59' 09.27" S	167 23' 46.16" E	y	y				2
B3A	Ambae	15 26' 21.08" S	167 40' 23.65" E	y					3
B3B	Ambae	15 19' 02.03" S	167 49' 45.47" E	y					3
B3C	Ambae	15 18' 38.52" S	167 50' 50.97" E	y					3
B3D	Ambae	15 17' 07.70" S	167 54' 34.20" E	y					3
B3E	Ambae	15 16' 31.70" S	167 57' 49.85" E	y					3
B3F	Ambae	15 16' 41.38" S	167 58' 28.43" E	y					3
B3G	Ambae	15 16' 49.11" S	167 59' 22.80" E	y					3
B3H	Ambae	15 17' 04.72" S	167 59' 29.37" E	y					3
B3I	Ambae	15 28' 16.42" S	167 49' 25.99" E	y					3
B3J	Ambae	15 28' 05.76" S	167 48' 28.66" E	y					3
B3K	Ambae	15 28' 16.69" S	167 45' 25.82" E	y					3
B4A	Malekula	16 23' 46.62" S	167 47' 20.36" E	y	y	y			2
B4B	Malekula	16 24' 23.56" S	167 46' 56.28" E	y	y	y			2
B4C	Malekula	16 24' 52.73" S	167 47' 31.09" E	y	y	y			2
B5A	Malekula	16 20' 31.84" S	167 45' 31.84" E	y	y				3
B5B	Malekula	16 19' 58.85" S	167 45' 44.81" E	y	y				3
B5C	Malekula	16 20' 40.96" S	167 46' 21.28" E	y	y				3
B5D	Malekula	16 22' 15.16" S	167 46' 33.03" E	y	y				3
B7A	Malekula	16 09' 54.60" S	167 32' 06.29" E	y					1
B7B	Malekula	16 09' 44.88" S	167 32' 24.99" E	y					1
B8A	Aore	15 32' 21.76" S	167 12' 50.35" E	y	y				3
B8B	Aore	15 34' 29.99" S	167 12' 39.65" E	y	y				3
B8C	Aore	15 36' 28.79" S	167 12' 47.46" E	y	y				3
B8D	Aore	15 36' 57.26" S	167 11' 06.32" E	y	y				3
B8E	Aore	15 36' 29.79" S	167 10' 20.08" E	y	y				3
B8F	Aore	15 36' 11.37" S	167 08' 56.23" E	y	y				3
B8G	Aore	15 36' 48.55" S	167 08' 44.61" E	y	y				3
B8H	Aore	15 36' 14 45" S	167 07' 59.70" E	y	y				3
B9	Wala	15 58' 05.77" S	167 22' 49.18" E						
B11A	Tutuba	15 32' 23.57" S	167 17' 07.26" E		y				20
B11B	Tutuba	15 34' 38.24" S	167 17' 27.31" E		y				20
B11C	Tutuba	15 34' 57.16" S	167 17' 11.40" E		y				20
B11D	Tutuba	15 33' 31.88" S	167 15' 58.75" E		y				20
B14A	Malo	15 43' 26.29" S	167 09' 03.04" E	y	y				8
B14B	Malo	15 44' 53.22" S	167 13' 53.10" E	y	y				8
B14C	Malo	15 42' 54.36" S	167 14' 53.26" E	y	y				8
B14D	Malo	15 42' 50.00" S	167 15' 46.84" E	y	y				8
B14E	Malo	15 42' 11.11" S	167 15' 32.83" E	y	y				8

B15A	Malo	15 38' 07.38" S	167 13' 35.58" E	y	y				4
B15B	Malo	15 38' 43.45" S	167 15' 02.82" E	y	y				4
B15C	Malo	15 40' 52.46" S	167 14' 08.08" E	y	y				4
B15D	Malo	15 42' 20.41" S	167 14' 25.26" E	y	y				4
B15E	Malo	15 42' 44.06" S	167 15' 17.51" E	y	y				4
B16	Vanua Lava	13 44' 22.63" S	167 25' 02.59" E	y	y				5
B18	Santo	14 44' 24.91" S	166 33' 18.00" E	y	y				2
B19A	Gaua	14 12' 18.64" S	167 30' 08.09" E	y	y				5
B19B	Gaua	14 13' 01.76" S	167 27' 46.89" E	y	y				5
B19C	Gaua	14 13' 41.17" S	167 25' 46.92" E	y	y				5
B19D	Gaua	14 16' 47.09" S	167 36' 11.37" E	y	y				5
B20	Santo	14 45' 18.90" S	166 33' 23.18" E	y	y				5
B21	Pentecost	15 34' 53.01" S	168 07' 45.69" E						
B22	Pentecost	15 33' 16.28" S	168 08' 12.85" E	y					1
B25A	Pentecost	15 49' 35.27" S	168 10' 02.94" E	y				y	3
B25B	Pentecost	15 50' 26.43" S	168 10' 01.31" E	y				y	3
B25C	Pentecost	15 51' 27.72" S	168 10' 03.92" E	y				y	3
B26	Ambrym	16 06' 02.96" S	168 08' 30.77" E	y	y	y			1
B28	Santo	14 54' 47.01" S	166 34' 05.41" E	y	y				1
B29	Santo	15 20' 28.00" S	166 39' 58.23" E	y	y				5
B30	Ambrym	16 11' 38.66" S	168 03' 25.04" E	y	y	y			2
B31A	Tegua	13 13' 25.52" S	166 37' 10.68" E	y	y				30
B31B	Tegua	13 14' 02.70" S	166 39' 25.49" E	y	y				30
B31C	Tegua	13 15' 06.29" S	166 39' 22.24" E	y	y				30
B31D	Tegua	13 15 44.22" S	166 36' 17.72" E	y	y				30
B32A	Hiu	13 09' 20.20" S	166 35' 22.92" E	y	y				20
B32B	Hiu	13 10' 24.42" S	166 32' 49.47" E	y	y				20
B32C	Hiu	13 07' 54.34" S	166 32' 37.46" E	y	y				20
B32D	Hiu	13 05' 54.39" S	166 33' 24.48" E	y	y				20
B33A	Malo	15 39' 10.65" S	167 05' 22.70" E		y				3
B33B	Malo	15 38' 27.57" S	167 05' 32.40" E		y				3
B34	Santo	14 55' 08.20" S	166 34' 12.67" E			y	y		2
B37A	Linua	13 19' 23.79" S	166 37' 24.87" E	y	y				10
B37B	Loh	13 20' 03.39" S	166 38' 05.80" E	y	y				10
B37C	Toga	13 26' 00.16" S	166 42' 17.49" E	y	y				10
B38	Santo	15 35' 12.98" S	166 56' 20.58" E	y					3
B39	Ambrym	16 21' 14.87" S	168 05' 42.51" E	y	y	y			3
B40	Araki	15 37' 23.53" S	166 57' 06.26" E	y		y			2
B41	Santo	14 42' 41.44" S	166 39' 07.03" E				y		5
B43	Ambrym	16 19' 17.21" S	168 01' 27.00" E	y	y	y			2
B45	Ambrym	16 21' 17.92" S	168 16' 02.71" E	y	y	y			2
B47	Santo	15 37' 43.29" S	166 51' 22.03" E	y	y				3
B48	Santo	15 35' 54.44" S	166 54' 12.55" E	y	y				1
B49	Mota Lava	13 42' 03.29" S	167 37' 34.58" E	y					2
B50	Santo	15 37' 27.54" S	166 52' 11.96" E	y	y				1
B51	Malekula	16 22' 24.18" S	167 23' 48.39" E	y	y				50

Appendix 2: Field Reports

WIAWI AND BAMBOO BAY SURVEYS TRAINING, November 29th - December 11th

Wiawi

Saturday hemi Sabbath blo Wiawi people from oli S.D.A. mekem se mifala i no mekem ani ting. Long Sunday November 30th mi wetem Konell we hemi brata blong Chief Timothy Nirambi, mitufala i wokbaot blog divaedem ol zones long beach blong olketa. Mi bin serem beach blong olketa i ko long 5 area. Evri wan we i min se i kat beach A-E. Evri beach ia mifala i divaedem i ko long ol zones blong 100 m.

Long bech E mitufala i faenem wan Hawksbill totel long 9:30 am we hemi kam blong nest. Mitufala i spenem two hours blong wait long hem blong i nest be hemi no faenem wan gudfala place mekem se hemi out mo ko back long solwota. Loang taem ia tu mitufala i no tekem ol tags wetem mitufala be mi mekem sam picture blong hem nomo.

After we mitufala i putum ol zones long beach E, D & C mitufala i spell long dei ia. Population blong Wiawi hemi very smol from i kat wan family nomom oli stap long village ia be oli kat bigfala area we ol totel i nest long hem.

Long Monday morning mi mekem wan awareness meeting wetem olketa from se oli still wantem save moa about laef blong totel so oli bin askem fulap kwistian we mi bin ansarem olketa. After we mifala i mekem samfala discussion finis long morning ia mi ko tru long ol form wetem olketa mo smol training long saed blong diggim nest after we ol eggs oli hatch. Olketa woman mo ol man oli bin interest long ol activities long dei ia.

Long afternoon mifala i mekem ol zones long beach B we is tap stret long village. Long naet long Monday mifala i mekem beach survey mo insead long group mifala i six everiwan. Taem mifala i kam long beach D mifala i faenem tufala female totel i wan hemi Green totel mo narafala hemi Hawksbill. Mifala i spenem plante aoa long tufala bifo tufala i nest mo mifala i tagem tufala after long olketa beach naoia oli totle oli stap visitim beach D mo E nomo be mi talem long olketa blong concentrate long beach D fastaem.

Long Tuesday mifala i makem wan nara beach long wilak. Sand beach ia hemi black mo hemi about 2 km mo oli reptom se ol Green totel mo Hawksbill nao oli stap nest long hem. Hemi tekem mifala klosap wan fuldei blong wokbaot from beach ia mo mekem wok long hem.

Tuesday night mifala faenem sam false crawl nomo be from mifala i taet tumas from wok we mifala i mekem long de ii mekem se mifala i spel early blong sleep.

Long Wednesday mi usum GPS blong finis make mol beach mo long naet mifala i ko aot long beach D bakaken blong beach survey. Long naet ia mifala i takem tufala totel bakeken. Wan Green mo wan Hawksbill.

Long Thursday morning Chief hemi wantem blong mi mas kat wan meeting wetem olketa bakeken mekem se mifala i mekem meeting mo tokbaot ol wok we oli mass tap mekem kasem taem mi ko back long Februari 2009 blong visitim olketa.

Long Friday mi livim Wiawi mo kam long Lakatoro then 9am mi ko long Lampupu. Mi spenem fuldei be inokat boat mekem se mi kam spenem weekend long Lakatoro then Monday to Bamboo Bay.

Bamboo Bay

Long Monday mi ko kasem vinmavis blong kasem boat but again no boat available and also because of the telecommunication problem so mi no save kasem eni boat then went back to Lakatoro.

Tuesday we caught a boat from Dispel then to Bamboo Bay. Tuesday afternoon mi holem meeting wetem two Chiefs and some of the people from the community then tok about nuifala community participaption long beach survey this year. After explenem ol samting wetem olketa we did a beach survey long naet but found no turtle.

Long Wednesday morning mifala i ko tru long olketa form with the monitors and visit the beach. Olketa oli kat plante total oli stap nest finis long olketa beach blong olketa. But dog oli spolem plante nest tu. Bamboo Bay oli still kat plante tags left so I didn't give them some more.

FOLLOW UP VISIT TO BAMBOO BAY AND WIAWI, February 1st – 14th 2009

Bamboo Bay

In Bamboo bay I first met with the monitors on the 3rd of Feb. 2009 on how the beach survey was done with the community. After talking with the monitors about their wok , I could identify some issues I need to sought out while iwas with them and they are as follow:

1. **Problems.**
2. **Wicknesses**
3. **Strength**
4. **Complaints**

ISSUE NO 1 . PROBLEMS.

1. Because of the weather that makes it rain a lot through this nesting session, some of the nest that we dug up to collect the informations , the eggswere completely undeveloped . In some nest the numbers of the undeveloped eggs is higher compared to the past nesting session.
2. The river that was close to the camp also dug up part of the beach from sector No 9 to pat of sector No 7. It makes it harder for the female turtle to nest on these sectors.
3. Some of the nest were washed over by the high tide and that leads to destroying the eggs completely . Also the very big waves dug out some of the nest on the beach to the sea and I case some of the hatchling must have been killed by the very big waves.
4. Dogs digging up the nest and eating eggs is still a problem out there.

ISSUE NO 2. WICKNESSES .

1. There are no crites on most of the nest to protect the nest from the dog and Some of the crites used on the nest were very old and are not strong enough to protect the nest from the dogs.The new crites that they were using on the nest were very small compared to the crites used before.
2. There are no nest IDS and other records on most of the nest to help identify the date laid, date to start checking and the date to dig to collect the information from the nest.

3. Community participation to the beach survey is very weak that sees only the monitors doing most of the survey work this session . That's something that I need to talk to the community about it.
4. They do have a committee in place for the beach work and even though the chairman and the vice are the monitors , there are no work plan for the community to follow.
5. They lost some of the information they collect during the survey because the informations are not recorded straight in to the forms on the same day or the same night.

Most of the nest should have been dugged to collect the information needed but nothing happen to the nest.

After telling the community about the weaknesses ,, they have agreed that the committees should have another meeting to make a work plan ready for 2009- 2010 nesting session .

The meeting with the committees was held the other day and they came up with the idea of setting up the 2009-2010 work plan. The first thing to do is a training with members of the community on how to collect data from the nest . That's what I have been doing with the committees after the meeting that day. The committees have agreed that they should start the training start after I live.

The 2009-2010 workplan will be presented by one of the monitors at the AGM this year in Luganville.

ISSUE NO 4 COMPLAINTS

The monitors suggested that it would be better if the contribution is divided in two parts. One for the monitors and the other part will go to the community because they , the monitors are the one doing most of the beach survey work.

Because John and Kalmori are the leaders of the committees, I told them to discuss that matter in their committee meeting and also with the community.

BEACH WORK REPORT

Apart from the issues , the monitors have tagged up to sixty female turtles this session of 2008-2009. Out of that number they lost one tagging form with the data collected in it. Most of the turtles were tagged on beach G and some on beach I . On beach G , they've got eighty seven nest with IDs. While twenty five with no IDs. And four nest eaten by dogs from the village. A total of one hundred and sixteen nest on beach G.

These are results of the data collected in some of the nest on beach G

ISSUE NO 3 STRENGTH

I have to arrange for two separate meetings with the community and the committees. The meeting with the community was held on Friday 6 February and Saturday 7 February was with the committees.

With the community, I talked about the weaknesses they have towards the survey work as I have mention earlier in issue No 2. I also told the two chiefs that it is very important for the community to participate fully to the project because it is the community who benefit from the project and it is very important to submit the information taken to the office so that we will know what to do next.

DATA COLLECTED IN NEST WITH NO IDs

Sector 8 = 60 undevelope eggs.
 “ = 136 undevelope eggs
 Sector 9 = 93 undevelope eggs
 = 76 eggs shells
 = 67 eggs shells
 = 90 eggs shells

DATA COLLECTED IN NEST WITH IDs

Sector 1 ID 26 = 69 undevelope eggs
 Sector 3 ID 20 = 145 undevelope eggs
 Sector 16 ID 70 = 90 egg shells
 = 21 undevelope eggs
 = 2 dead baby turtles

Apart from this riport , the monitors will be counting nest from beach **A** to beach **J** and also collect data s from the nest and will let us know the result during the workshop.

RIPORT FROM WIAWI

When visiting Wiawi, I met chief Timothy who is the monitor from his own village and his brother Konnel who was in the AGM last year in Santo. When asked how many turtles they tagged after the training last year, they say seventheen during the nesting session . Out of the seventeen , two are foraging male.

During the beach survey ,thy discover a female turtle which have been tagged some where with a tag mark NO. K 34661 on the left flipper but they didn't see if there is a address under the tag.

Also in Wiawi , I could consider that there are some issue similar to Bamboo bay that should be addressed. The issues are :

- 1. PROLEMS**
- 2. WICKNESSES**
- 3. TRAINING**

ISSUE NO. 1 PROLEMS.

The problems in Wiawi is similar to that of Bamboo Bay ,except that in Wiawi , we could identify one or two nest that have been dugged up by people from the village near by who came to the beach may be for fishing. Apart from that they have the problem of :

1. Dog s eating eggs.
2. Weather that makes it rain a lot during the nesting session.
3. The big waves and the very high tides that washed out some part of the beach.

ISSUE NO. 2 WICKNESSES

1. They didn't go back to collect data from the nest .
2. The informations are not recorded probly in to the sheets .

3. No crites on the nest to protect the eggs from the dogs.
4. No IDs and dates recorded on the nest to make it easier for them to know the exact date to dig and collect the data from the nest.

ISSUE NO. 3 TRAINING

Some of the village people followed me to beach D and that is where I did the training with them on how to collect data from a nest. The first nest was on sector 5 and we counted up to 120 egg shells ,no undeveloped , no dead and live baby turtle in the nest.We counted 102 egg shells in the other nest on the same sector an again there were no undeveloped eggs and no dead and live baby turtles in the nest.. After the training on that day , I told them to do the same thing on the other nest and write down the informations on the nesting sheet that I give them and the sheet must be taken to the workshop if they cannot sent it to the office . After the beach training we went back to the village and I show them how to build bamboo crites for the nest.

GENERAL INFORMATION ABOUT TURTLE NESTING IN WIAWA

The turtle nesting in Wiawi this year is different compared from last year and the year before. This year ,they only found nest on two beaches while last year they found turtle nesting on every beaches starting from beach A to beach E.. Beach F is also part of Wiawi but is very far from Wiawi village so the chief gave me the name of a person who live close to the beach to be come a monitor and his name is **Watson Jonh Bill** . He is from Wilak village.

The other riport is about the monitor from Winn village. She attended a workshop in Leviamp village some years ago . I was there during the workshop and trained them on how to tag turtles. The only thing is that there were no tagging divice and tags given to the monitors after the workshop.

An old man name Wilson Abon was in Wiawi last year and he was also in the beach survey training . He took a beach work sheet with him to his village and he gave the sheet to the monitor and he helped her with the survey during this session. The monitor fill in the form and sent me the form when iwas in Wiawi .

Appendix 3: Vanuatu Turtle Tagging and Nest Data Form (translated from Bislama to English)

Island:		Village:		Beach Sector:	
Latitude (ddd min.ddd N/S):			Longitude (ddd min.ddd E/W):		
Habitat where turtle found:		Reef / lagoon / sea grass / open water / open beach / beach grasses / forest			
Date:	__ / __ / ____	Time:	__: __ PM / AM		
Form filled out by:				Turtle measured by:	
Species:		Flatback / Hawksbill / Green / Leatherback / Loggerhead / Olive Ridley			
Sex:		male / female / unknown			
Encounter type:		caught in net nesting snorkeling daytime snorkeling night other:			
Tagging status:		tag scars from an old tag that has come off first time the turtle has been tagged turtle was tagged on this beach earlier this season turtle was tagged on this beach during a past nesting season turtle already tagged but do not know at what location			
Activity:		nesting / swimming / eating / resting / trapped in a net / mating / floating (dead or sick) / washed up on beach (dead or sick)			
Condition:		dead / alive			
Curved carapace width (cm):			Curved carapace length (cm):		
Existing tags on turtle:	yes / no	Tag # on left flipper:		Tag # on right flipper:	
New tags applied:	yes / no	Tag # on left flipper:		Tag # on right flipper:	
Did the turtle lay a nest:	yes / no	Nest ID #:			
# empty shells:			# unhatched eggs:		
# live hatchlings in nest:			# dead hatchlings in nest:		
Comments:					

Appendix 4: Nest Data Capture Sheet (translated from Bislama to English)

Nest #	Beach Sector	Date Found	Eggs Seen (Yes/No)	Turtle Tagged (Yes/No)	Date to Start Checking	Date to Dig	Hatched (Yes/No)	Date Hatched	# Live	# Dead	# Bad Eggs	# Egg Shells	Total # Eggs in Nest	% hatched	comments
1															
2															
3															
4															
5															
6															
7															
8															
9															
TOTALS															

*this is a shortened sample of the normal field sheets

Appendix 5: Financial Report

Epi-Votlo and Ambrym-Maranata				
<i>Community run leatherback surveys</i>				
<i>Item</i>	<i>total vatu cost</i>	budget	spent	available
per diem for Votlo community to conduct survey	50,000	50,000	50,000	0
per diem for Maranata community to conduct survey	50,000	50,000	50,000	0
sub total	100,000	100,000	100,000	0
Malekula- Bamboo Bay, Wiawi and East Malekula				
<i>Green, Hawksbill and Leatherback Surveys</i>				
<i>Item</i>	<i>total vatu cost</i>	budget	spent	available
transport (airfares, boat fares, land transport)	330,000	330,000	329,943	57
food and accommodation	90,000	90,000	89,815	185
per diems (staff during training and community for survey)	345,000	345,000	344,000	1,000
equipment and materials	50,000	50,000	51,640	-1,640
sub total	815,000	815,000	815,398	-398
Santo- North and South				
<i>Recruit and train new monitors, workshop, and community run nesting beach surveys</i>				
<i>Item</i>	<i>total vatu cost</i>	budget	spent	available
transport (airfares, boat fares, land transport)	170,000	170,000	168,338	1,662
food and accommodation	185,000	185,000	188,710	-3,710
per diems (staff during training and community for survey)	115,000	115,000	114,000	1,000
equipment and materials	20,000	20,000	23,400	-3,400
sub total	490,000	490,000	494,448	-4,448
WSB 15% administration fee	210,750	210,750	210,750	0
TOTAL	1,615,750	1,615,750	1,620,596	-4,846
Total Request in Vatu	1,615,750			
Total costs in US dollars (@1 USD=100 vatu)	16,158			
TOTAL USD REQUEST	\$15,000			

**budget is over grant amount so extra will come from NZAID grant