

OceansWatch Project Report

Marine Report: Dolav, Ontar and Qetegaveg, Gaua

13th - 19th June 2016



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Front page; *Discussion of a reef monitoring survey, Qetegaveg, Gaua. Photo credit: Chris Darby.*

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Acronyms

COTS
RG
OW
CCA

Crown of thorns starfish
Reef Guardian
OceansWatch
Community Conservation Area



1. Introduction

OceansWatch (OW) has been coming to Vanuatu since 2008 and has carried out work throughout the country from Efate, Malekula, Epi to Espirito Santo to Gaua and Vanua Lava. Primarily work has been carried out in the more isolated communities where other Non-Governmental Organisations (NGOs) have not been able to access. During the 2016 expedition the villages of Dolav, Ontar and Qetegaveg on Gaua were revisited by two members of the team who visited the communities in 2015 with two additional members. Gaua is one of the more northerly islands of Vanuatu (figure 1) and is within Torba province.



Figure 1: Map of Vanuatu showing the locations of the three villages (in red) that the 2016 marine team worked with on the island of Gaua.



The aim of the 2016 expedition to Dolav, Ontar and Qetegaveg on Gaua, was to continue the work that OceansWatch carried out in previous years. Following specifically on from the 2015 expedition, the 2016 objectives were to:

- Follow up with the Community Conservation Area work and engagement during 2015
- Establish whether a monitoring program would be beneficial and wanted by the communities
- If required, train a core group of reef monitors using the reef monitoring based on Reef Guardian methods and in line with the RESCCUE monitoring toolkit.
- Deliver educational (awareness) sessions to the primary school
- Carry out a photo transect to allow continuous monitoring of the reef

1.1 Community details

The three isolated villages of Dolav, Ontar and Qetegaveg are located on the western side of Gaua (Figure 2.) and are only accessible by boat or on foot on a single track through the bush from the other side of the island. All villages are well established and there is a lot of movement and collaboration between all three communities. The primary school in Ontar serves all three villages and they often hold combined church services. The largest population is in Qetegaveg and the smallest is in Dolav.

All three communities were evacuated to the eastern side of Gaua during the 2009 eruption of Mt. Gharat and did not return for 18 months. This event caused a lot of trauma to families who returned to completely destroyed homes and gardens. Their evacuation was supported by the government but they did not receive any governmental help in re-establishing their communities post eruption (pers. coms.).

The reef in front of all villages was covered in a layer of ash which smothered the growth and is now in recovering stages. Tabu areas have been a critical part of local marine management and until 2015 all communities had their own isolated Tabu area.



Since OW's visit in 2015 all the villages have linked their Tabu areas to make one larger managed area.



Figure 2: Map of Gaua Island showing the location of Dolav, Ontar and Qetegaveg

1.2 Marine resources and fisheries

All three villages have a fringing reef close to the main inhabited areas. All fishing is currently carried out by fishing line and hook. Tabu areas (no fishing zones) are adhered to but they can be opened at the discretion of the chief following a community meeting. From September 2015 to April 2016 the Tabu areas had been opened up to fishing because of the very dry season caused by the El Niño (Pers. Coms. 2016). All fish caught are eaten locally as there are no methods of preserving or exporting any fish.

1.3 Summary of OceansWatch 2016 marine program

Community meetings were held during the first day of the Oceanswatch team arriving to set up the week's program. Two days were spent introducing and running the marine monitoring programs and in water community surveys were carried out in Ontar and Qetegaveg. At the school, an interactive session on food webs was delivered to all the pupils which used outdoor games, a video, drawing and a discussion session. Photo transects were carried out by SCUBA to build up a catalogue of the habitats in the area which, if necessary could, be analysed remotely. Two evening film screenings were also shown in Ontar's meeting house.

2. Community Conservation Area

2.1 Community meeting

Before carrying out any further work with the community conservation area it was important to assess what had happened since OceanWatch's visit in 2015. An informal questionnaire was asked to the three communities to establish if the input from last year's team had been beneficial and how the areas were currently managed.

The results of the questionnaire identified that the communities were managing all three Tabu areas as one protected area under the same management plan. Everyone has been adhering to the rules set out in the management plan (details in the 2015 Vanuatu report).

A community decision was made to open the CCA to fishing between the month of September 2015 and April 2016 because the dry season had caused crops to suffer meaning that people were more reliant on fishing for food. As well as that period of time it was opened for one day for a celebration on the 24th June for Saints Day.

Those who were at the meeting expressed an interest in developing a monitoring program to allow local assessment of their CCAs. This is a natural progression from the setting input from OceansWatch in 2015 so that the community can monitor and make effective decisions for management of their marine resources.



2.2 Reef monitoring training

A power point presentation was given in Bislama explaining the purpose and methods involved in the marine monitoring program (Figure 3). The Methods were based on Glenn Edney's Reef Guardian program which had been adapted for the RESCCUE marine monitoring tool kit. The method is a qualitative assessment of reef health whereby instead of recording counts, individual Guardians record an intuitive estimate of reef health along a line drawn on a slate and graded from "nogat" (nothing) to fullup (full) (Edney, 2012). Once individuals have made an independent assessment, the group comes to a consensus and it is those consensus results that are recorded in the note book each month.



Figure 3: Eryn Hooper giving a presentation of the monitoring program. The school also came to watch.

After the presentation the marine monitors held a discussion using guidance given in the presentation on the types of indicators that they thought were important to monitor (Figure 4). They also decided to use a scale from no wan pis (no one piece/nothing) to fulap (full) and drew that on their slates.



Figure 4: Monitors deciding on indicators to include in the surveys.

The monitors agreed on the following indicators to measure and assess:

1. Helti (health)
2. diffen kaen kaen (diversity)
3. rif fulap (abundance)
4. nalumlum (algae)
5. piko
6. strongskin
7. blufis (parrot fish)
8. los (grouper)
9. plante fis (schooling fish)
10. papoin (butterfly fish)
11. waet korel rif [slak] (bleaching)
12. posen sta (COT)
13. korel i brok (mechanically damaged coral)

Two in water sessions were held (Figure 5). One was held at Ontar and another in Qetegaveg. The second session came following a request from the monitors who wanted to show marine monitors from Qetegaveg how to carry out the new monitoring method. Participants are detailed in Table 1.



Figure 5: In water session of Reef Guardian training in Ontar and Qetegaveg.

Table 1: Attendees to the reef monitoring sessions

Name	Village	Present at first training session (Ontar)	Present at second training session (Qetegaveg)
Terry B	Ontar	✓	✓
Mesel N	Ontar	✓	✓
Felimon	Qetegaveg	✓	✓
Lolwon	Qetegaveg	✓	
Ashwin E	Ontar	✓	✓
Cambel	Ontar	✓	✓
Christopher	Ontar	✓	
Silas Marav	Qetegaveg		✓
Tomas	Qetegaveg		✓

The start and end of the survey was decided upon based on key identifiable features. In Ontar two black rocks were used. In Qetegaveg the headland was used as one end and the rocks were used as the other (Figure 6).



Figure 6: Map showing the position of the survey sites where the marine monitors of Ontar and Qetegaveg decided to monitor

The length of the survey in Ontar is 200m and slightly longer in Qetegaveg at 280m. The start and end coordinates for Ontar were 14.29489 S 167.42419 E and 14.29657 S 167.42493 E. For Qetegaveg 14.27495 S 167.42380 E and 14.27667 S 167.42566 E

All monitors had an individual slate and recorded what they thought they saw and experienced when swimming along the survey line. Following this they came together on the beach to discuss what they had seen and come to a consensus of where the line should be in the record book (Figure 7).



Figure 7: Marine monitors coming to a consensus on the beach

2.3 Discussion

It was very encouraging to return after a year to find that the community was still referring to the rules and regulations of the CCA plans that were initiated by the community with technical guidance from the 2015 OceansWatch team. Despite the area being opened and fished for 8 months the community were keen to protect their marine resources and understand about depleting resources together with a rising population.

Despite the 2015 OceansWatch team collecting the relevant paperwork and progressing with the process to register the CCA it was decided that registering the

CCA with the Vanuatu government would not be beneficial for the community. This is because the government's advice is that if the community are managing their resource in a successful manner without the need for intervention then the additional bureaucracy may not benefit the community themselves. Given the current situation and lengthy process to register a CCA, along with the strong community level governance, the best way to protect and maintain the marine resources is to strengthen the marine monitors' capacity by giving them the tools they need to monitor their CCAs.

The marine monitoring method was received and understood very well by the monitors, and there were some very keen individuals who grasped the concept very well. Due to a large number of people from Dolav working in New Zealand, the newly trained monitors from Ontar and Qetegaveg were encouraged train the community members from Dolav when they return. The Conservation Committee was given an extra record book so that Dolav could record their results.

Some things to be considered as a result of our sessions:

- Those who were reef check trained had initial difficulties using the line rather than counting. It was evident that previously learned methodologies are hard to shake off.
- Bleaching as a concept wasn't well understood and being able to identify it was not strong. We need to be careful about including it although it is something that requires monitoring.
- It needed to be made clear that the survey is for the transect only rather than what an individual knows or feels about the whole area. It shouldn't reflect what individuals know about the area from previous snorkelling.



3. Marine Education

A marine education session was held at Silver Memorial School. The school is in Ontar and receives students from Ontar, Dolav and Qetegaveg. The classroom session was arranged with the school's head teacher, Charles and a senior teacher, Glenny. The 2015 OceansWatch team also worked with Charles and Glenny and both were happy to see OceansWatch return this year, especially with the return of two members of the 2015 team.

A classroom was assigned and all three classes of about 60-70 students attended the session. This meant the room was very full so the session began with a game outside, giving time to prepare the classroom (set up the projector and generator etc.).

Once the children were back in the classroom a shortened (20 minute) version of the David Attenborough 'Coral Seas' documentary was played. Due to some feedback from the speakers the audio had to be omitted. This actually resulted in a positive outcome as the OceansWatch team had to explain what was happening on the screen. The explanations provided were less wordy and geared towards the audience. Consequently, they were likely better understood. The children were all very engaged with the documentary and were very attentive to the explanations also.

Following the documentary viewing a small, interactive lesson on food webs was prepared. The children were asked to draw their favourite thing, plant or animal, from the reef. There were a few logistical issues with this. There was not a lot of space and not enough pencils but the children shared everything, it just took a little longer than expected. The children produced a lot of different pictures of marine life and an excellent variety of animals



Figure 8: Children deciding where to put their drawings on the food web

were represented when they were all finished. A food web was then produced across the floor of the classroom beginning with coral and algae.

The children were asked what eats the coral and/or algae, and if they had drawn something that belonged in the next link to place it down on the floor. This process continued to the end of the food chain. Any wrong answers were discussed as they came up. A few gaps not drawn by the children, such as 'man' and 'algae' were added in. The children were also asked what the coral and algae needed to grow and the sun was added. To conclude it was explained how the whole chain is connected and that if they look after the reef then the reef, in turn, will look after them. The children seemed to understand this idea very well.



Figure 9: Children from Silver memorial school a) placing their drawings into the food web and b) drawing their marine life

Once the session was finished Charles and Glenn returned to the classroom. Charles made a small video of what we had done and then gave another explanation of the food web to the children in Bislama.

3.1 Discussion

If time allows, it would be very beneficial to meet with Charles or Glenn prior to the session to find out the age group of the students and to what level they have already studied the marine environment. This would help to create a lesson plan specifically towards the level the students are currently at. The use of the extra resources, such

as the projector, that the Oceanswatch team have can then be used in the most effective way for the students.

In this case we were told by Glenny after the session that the children were really interested in the coral reproduction they saw in the video. We could make use of having the projector as a tool to explain aspects of coral biology, for example, in a way that may be much easier to understand than solely a verbal explanation.

The Oceanswatch team should try to meet with the school early in their arrival on the island to allow time to create the lesson plan. They also need to ensure that all equipment that may be needed is brought along to the session.

The children had an excellent grasp of English and we noticed that all the posters in the classroom were written in English. When asked about this, Charles explained that the children were taught in English and not Bislama. However, he said that soon the curriculum was to be changed and would be taught in Bislama (something he did not seem to think was a good thing).

Consequently, producing resources to use in the school, powerpoint presentations etc., in Bislama is not crucial at the moment, even though it may be beneficial to some. However, in the future it could be increasingly more important if the curriculum does change.



4. Surveys

A survey was conducted in a section of the Community Conservation Area directly offshore from Qetegaveg village, in the same general area surveyed in 2015.

The objectives of the survey were to:

- Record qualitative observations of coral cover and community composition, algae cover and major fish taxa, as a rapid assessment of reef health within the Community Conservation Area; and
- Record photographic footage of the benthic substrate for storage in the SPC database to enable future analysis.

4.1 Methods

The photo transect was conducted on 18 June 2016 by scuba diving at a depth of 6m – 8m on the reef slope. Three 20m transects were laid out in a line following the 6m depth contour with an interval of 10m between each transect finishing 80m from the start. The transect line was colour marked every meter and was laid along the substrate. GPS coordinates were recorded at the start of the first transect (Table 2) and the transect line was laid in a southerly direction in a line parallel to the shoreline.

Table 2: coordinates of the start of the photo transect

	Longitude	Latitude
Photo transect	167.42314 E	-14.23140 S

Photos of the substrate was recorded every meter within each of the three transects with a Canon D30 Powershot 12 Megapixel underwater camera, capturing 4000 x 3000 pixel images. Photos were taken at a consistent height above the substrate with no optical zoom to capture a minimum area of 0.06 m² (20 cm x 30 cm) centred on the transect tape.

Images will be uploaded to the Coral Portal maintained by SCP.

<http://www.spc.int/CoastalFisheries/CPC/Surveys> The images will be analysed for (1) substrate type (sand, coral, rubble, crustose coralline algae, macroalgae) (2) coral

type (by family or genus) (3) percentage and size of juvenile corals and (4) percentage of coral bleaching.

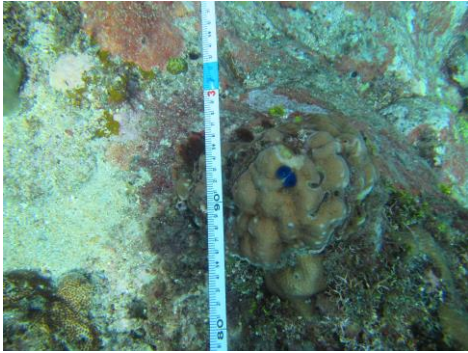


Figure 10: An example of a photo taken of the substrate tape



Figure 11: Rolling up the transect

4.2 Results

Conditions during the survey were calm with clear skies and a slight south easterly breeze. The survey was conducted at low tide and visibility was approximately 7m. A total of 60 photos were taken of the benthic substrate along the three transects.

The benthic substrate in the survey area consisted of bare rock with a relatively complex topography and an estimated coral cover of approximately 30 - 50 %. Coral growth forms were mainly encrusting with some massive and submassive colonies (Figure 10), which is typical of a reef front exposed to pounding waves and consistent with observations from the 2015 survey in the Qetegaveg Tabu area. Massive and submassive growth forms included *Porites* colonies and some *Faviidae* (such as *Diploastrea*), encrusting (*Montipora*, *Echinopora*) as well as some small branching *Acropora*. Coral recruits appeared abundant, and there was no bleaching or evidence of crown-of-thorns damage. Ash coverage damage was evident and the structure suggested much larger and extensive historical coral cover.

Observed macroalgae included red algae, calcareous *Halimeda* and *Turbinaria*. Crustose coralline alga was widespread. Some turf alga was present but with low apparent cover. Statistical results should be available when they had been uploaded and processed on the porta

6. Recommendations and conclusion

During the 2016 June expedition we were able to complete the objectives of following up the CCA work and community consultations lead to introducing a monitoring program. A core group of reef monitors were trained based on the Reef Guardian methods and in line with the RESCCUE monitoring toolkit. Educational sessions were held at the school and the team carried out a photo transect of the reef in front of Qetegaveg.

The 2016 team recommend the following activities and actions to be carried out in 2017 to continue the work forward and build on what's already been achieved.

- Prepare educational materiel for key concepts that need to be explained to reef monitors such as bleaching and the biology of corals. Use the projector to illustrate concepts with easy to understand images.
- Consult the environmental committee to find out about the current state of the Tabu areas and get an update on monitoring efforts. During discussions or questionnaires, also record indications of key targeted fish, estimate of fish catch, changes in reef condition / fish species they might have seen over time. Encourage monitoring of management e.g. when the resource is opened to fishing.
- Use the most updated marine monitoring toolkit from the RESCCUE project to continue local marine monitoring as well as providing a refresher to the Reef monitoring methods.
- Ensure monitors from Dolav receive training
- Allow the monitors to show the OceansWatch team how they are currently carrying out their in-water sessions.
- Conduct another photo transect starting at the same point as the 2016 team and get pictures that can be uploaded to the SPC portal
- Use the recommendations from the education section of this report to continue education efforts with the school children. Valuable resources may be found on the SPC website.



- Find out if there are any possible synergies with Island reach, ensure any work is in line with each other

There was a keen interest to build ecotourism in the area. The 2016 were invited to a sunset string band and women's water music performance and to give guidance on cost and feedback to Father Levi. If possible the 2016 team should help promote these activities in a sustainable way and raise awareness of litter and the impact of tourists coming to the island. Kept on a small scale there should be no real issues as most visitors will be from passing yachts.

At time of print there is discussion of a virgin coconut oil visit by another OceansWatch team. Depending on the outcome of this initiation or follow up should be carried out in line with the Rufford grant application.

The 2017 should ensure that they have additional USB sticks which can be left with the village if any digital material is required to be left. A working printer with additional inks would also be useful along with a laminator.



Appendix

CCA Questionnaire results

1. How are the CCAs being managed?
They are all joined up. All villages work together and the same rules apply to the whole area.
2. Is everyone adhering to the rules?
Yes
3. Has anyone broken the rules and have you had to fine anyone during the last year?
No
4. Does everyone in the 3 villages have enough fish to eat?
Yes
5. How much has the conservation areas been open since last year?
This year has been a very dry year so a chiefs meeting was held and it was decided to open the conservation areas from September until April because the gardens were not producing enough food to feed everyone.
It is closed now but it will be opened for one day for saints' day on the 24th June. Already this year it has been opened for 2 days. Normally in one year it is opened for 4 days a year.
6. Would you like to be able to monitor your reefs?
Yes

Coordinates of key survey locations

Point	Longitude (degrees E)	Latitude (degrees S)
Ontar transect start	167.42419	14.29489
Ontar transect finish	167.42493	14.29657
Qetegaveg transect start	167.42380	14.27495
Qetegaveg transect finish	167.42566	14.27667
Photo transect start	167.42314	14.23140

2016 log

Sunday 12th June

Anna Rose arrived in Luganville at 0115. Crew slept for a few hours before collecting Isabel from the airport. Last few preparations before leaving for Gaua at 1400.

Monday 13th June

Arrived in Pwetevut bay 0060 after overnight sail. Came ashore and went to Dolav village and spoke with Susan, John Star and family. Walked to Ontar and spoke to Christopher in Dolav on the way.

Arrived in Ontar and went to Silver memorial school where we spoke to Glenny, a teacher at the school. We proposed our plan to come to the school on Friday. Glenny said she would



change the schedule to allow us to come. We then went to the centre of Ontar village and Glenly explained to everyone what our plan was. We then had a small discussion with Father Levi.

There was a small water dancing performance on the beach and we were then invited to Father Levi's house for some small fruit. We told him our plan and he said he would explain it to the whole village when they come to choir practice that evening.

Tuesday 14th June

Went to Dolav to pick up a boy (Augustus) who wanted to join in with the reef swim and discussions. We took him in the dinghy to Ontar where we met the rest of the 6 men who wanted to swim on the reef. We all went to snorkel on the reef, pointing out good sites, and species. Chief Derek and Father Levi watched from the beach.

Afterwards we met in Ontar village centre with more members of the village including two from Qetegaveg. We discussed the reef and what we'd seen and then asked a few questions about the CCA and how it was working. We then proposed the monitoring program and asked everyone to discuss if it was something they wanted. After a small discussion it was decided that we carry out a 2 day program and the word would be spread to the other villages and training would be held on Wednesday and Thursday.

The afternoon was spent preparing for the Reef monitoring session.

Wednesday 15th June

Went to Ontar to carry out the Reef Guardian monitoring training. Stopped in Dolav first with the aim to pick up Augustus and anyone from the village interested in the monitoring program. We were told by Susan that a few men including her husband /John Star (same?) had already left on foot and would find us there. But in the end no one from Dolav attended the session. This year thirteen men from the village were working in New Zealand, leaving only twelve in the village probably with little time left to attend training

In Ontar we were met with men from Ontar and Qetegaveg. Philemon from Qetegaveg had been trained in Reef Check. Eryn presented a ppt presentation inside the church, in bislama. This was also attended by a class of children from the school, accompanied by a teacher. The presentation was very well received with people nodding and showing interest.

We then went to white sand beach to carry out the monitoring. We distributed the slates and had a small discussion about filling them in, and decided where to place the transect. This was around the point at the northern end of the beach. During the survey, a few people were seen standing on the reef. People were otherwise very engaged and asked questions



along the way about the health of the reef. Philemon spotted a large moray eel and excitedly showed it to everyone.

After the snorkel Eryn led the group to discuss the results and get a common agreement on a final score for each category. There was some discussion on bleaching, which remained unclear for most people. As for fish, the men recorded that grouper (Los) was present because they had seen some at other times. It was clarified that only the survey observations should be noted on the slate. Overall the group took up the monitoring approach very quickly and it was decided they did not need a second session.

In the afternoon we visited Moses in Ontar (kava) and bought fruit and veg.

In the evening we had a cinema session at Ontar village and showed Coral Seas (David Attenborough) and Finding Nemo. During the projection Qetegaveg said they wanted to have another session the next day, this time in Qetegaveg to train more people there and survey their reef. Great day, big success

Thursday 16th June

In the morning went to Qetegaveg via Ontar (to pick up Augustus) and carried out a second reef guardian session. There was only one new trainee, Silas, from Qetegaveg. The group quickly explained the method on the beach and discussed where to place the transect (Campbel said they were aiming for the 'best' part of the reef). During the survey the group was very focused and engaged, swam in a straight line and returned to the beach to discuss their results with Debbie recording the final result in the village notebook. Everyone's marks on the slates were in high agreement, and it seems the group has successfully adopted the method. We donated three slates, two masks/snorkel sets and the record book for Qetegaveg to enable the monitoring to continue. They seemed keen to carry out about three surveys a year.

Dropped off the rest of the group in Ontar and donated a notebook, four slates and three mask/snorkels, to share with and teach people from Dolav when they returned from NZ.

In the afternoon visited Christopher. In the evening prepared for the next day's school session.

Friday 17th June

In the morning we went to the school in Ontar (Silver Memorial School). We arrived about 9am and were greeted by Charles Vanler (Headteacher) and Glenny. We were given a classroom to hold our session in and within a very short time the children were all in the classroom and ready for us to start. We had 3 classes of children for the session (maybe 60/70?) so the room was very full.



To begin with we took all the children outside to play the octopus game. This gave us some time to set everything up in the classroom. Once the game was finished all the children came back in the classroom and we watched a shortened (20min) version of the Coral Seas (David Attenborough) documentary. Due to some feedback we were unable to play the sound but we all agreed it actually went better without the sound as we could explain what was happening. The children were all very engaged in the documentary and were attentive to the explanations also.

The children had an excellent grasp of English and we noticed all the posters in the classroom were in English. We asked Charles about this and he said the children were taught in English not Bislama (However, Charles said that the curriculum was going to be changed soon and all be taught in Bislama – something he did not think was a good thing).

Following the documentary we then had a small lesson on food webs prepared. We first asked all the children to draw their favourite thing they see on the reef. This was a little tricky logistically as there were so many children and not many pencils or space! The children soon started producing lots of different pictures of animals – not only ones on the reef, they just started drawing any marine creatures. This worked quite well for the lesson as we had a really good variety of drawings when they had finished. We then produced a food web across the classroom floor with these pictures, beginning with anyone who had drawn coral or algae sat at one end of the classroom and man at the other. We also asked what the coral/algae needed and added in the sun and then gave an explanation of the food web and how all the animals were connected and that if they look after the reef then the reef, in turn, will look after them. The children seemed to understand this idea very well. Once we finished Charles and Glenly came back in. Charles filmed some of what we were doing and then gave another full explanation of food webs to the children in Bislama.

After the classroom session Charles asked us if we could help him with a printer the school has but is not working. We could not help as they did not have the drivers for the printer and they had the wrong ink. We arranged to take the wrong ink back to Luganville and exchange it for the correct ink and also download the drivers then send this back to the school.

After, what we all agreed was a very successful morning session at the school we got back to Anna Rose at lunch time. At some point in the afternoon after lunch we had a visit from Christopher and his friend.

We then returned to Ontar about 5pm to meet with Father Levi. He wanted our help in putting together a poster to promote his idea of a sunset string band evening of food and dance on the beach. This would be available to visitors on request and he wanted to show us what was on offer so we could take pictures and then help him to work out a cost and to put together the poster.



Saturday 18th June

Photo transect of the reef outside Qetegaveg via SCUBA. Afternoon, preparing boat for departure on Sunday morning.

