



**SPC**  
Secretariat  
of the Pacific  
Community

## **REPORT ON SANDWATCH TRAINING WORKSHOP**

### **KIRIBATI**

**8 – 10 December 2015**



*Workshop participants on the beach at Betio*

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## Executive Summary

Sandwatch is a volunteer network of children, youth and adults working together to monitor and analyse changes in their beach environment. Through Sandwatch, they use a standardized approach, share their findings with the wider community and take action to address issues, enhance their beach environment and build resilience to climate change. Sandwatch is a practical, hands-on example of Education for Sustainable Development.

The first Sandwatch training workshop in Kiribati was held in 2010. This 2015 Sandwatch training involved 25 people, of which 16 were teachers, mostly new to Sandwatch. Other participants came from the Ministry of Fisheries and Marine Resources (MFMR), Ministry of Education and the Curriculum Development and Resource Centre (CDRC), Ministry of Environment, Lands and Agricultural Development (MELAD), Secretariat of the Pacific Community (SPC) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

The objectives of the training were all achieved and were as follows:

1. Review Sandwatch activities in Kiribati over the period 2010 – 2015
2. Provide training in Sandwatch activities to teachers new to Sandwatch
3. Introduce new Sandwatch activities such as the Sandwatch International Database and the Beach profile method.
4. Plan Sandwatch activities for 2016 and beyond.

Presentations from MFRM and the CDRC gave an overview of Sandwatch activities over the 5-year period and how certain aspects had been incorporated into the Primary School curriculum. Participants discussed in small groups what went well, what could have been done better and how to make Sandwatch activities sustainable.

Most of the workshop was devoted to learning about the Sandwatch methods, practising them on the beach and then analysing the results.

During the third and final day, participants focused on future planning. Each school committed to carrying out certain Sandwatch activities as described in the Sandwatch Manual and the MFMR will prepare an action plan. The main recommendations were:

- The Sandwatch Committee, led by the Ministry of Education and the MFMR, to meet once every term i.e. three times a year.
- The Sandwatch Committee will monitor each school's Sandwatch activities and each participating school will provide a report each term.
- The Sandwatch Committee will also reach out to communities.
- MFMR will assist in entering data to the Sandwatch International Database.
- Sandwatch equipment will be required, especially tape measures for each participating school.
- Fund raising will be undertaken to support events e.g. Sandwatch Day and competition.
- CDRC to incorporate aspects of Sandwatch in the curriculum review for junior and senior secondary schools (scheduled to start in 2017).

The evaluation showed 60% of the respondents were very confident in using Sandwatch methods while the other 40% were moderately confident.

## **1. Background**

Sandwatch is a volunteer network of children, youth and adults working together to monitor and analyse changes in their beach environment. Through Sandwatch, they use a standardized approach, share their findings with the wider community and take action to address issues, enhance their beach environment and build resilience to climate change.

With its practical hands-on approach, Sandwatch is an example of Education for Sustainable Development – an approach to teaching and learning that seeks to empower and encourage people of all ages to assume responsibility for creating and enjoying a sustainable future.

Sandwatch is science in action, applied in the real world in an interdisciplinary manner with applications ranging from geography to art, and from poetry to mathematics. It helps students to apply their school-based learning to everyday life situations.

The Sandwatch programme started in 2001 and groups from more than 30 countries around the world are actively involved in Sandwatch.

The first Sandwatch training workshop in Kiribati was held 15-17 September 2010 and was coordinated by the Ministry of Fisheries and Marine Resource Development (MFMR) with support and funding from the Secretariat of the Pacific Community – European Union supported project on Environmentally Safe Aggregates for Tarawa (SPC-EU-ESAT), the UNESCO Cluster Office in Samoa and the Sandwatch Foundation. Twenty six people were involved in the training of which 17 were teachers from Junior Secondary and Senior Secondary Schools.

Between 2010 and 2015 Sandwatch activities continued in Kiribati coordinated by the MFMR and supported by the ESAT project with remote support from the Sandwatch Foundation. The schools trialled the different Sandwatch activities and focused particularly on beach clean-ups which were very successful and helped give Sandwatch a high profile in Kiribati. A small grant was also provided by the German Development Agency (GIZ) to support Sandwatch activities. At the same time the Curriculum Development Research Centre (CDRC) has been working on revising the school curriculum and some Sandwatch concepts have already been integrated into the primary school curriculum.

However, as the ESAT project and the GIZ funding are coming to an end, it is timely to review the Sandwatch activities and discuss how they can be sustained and continued in the future, as well as how Sandwatch concepts can be integrated into the ongoing work of the CDRC to continue the curriculum revision for junior secondary and senior secondary schools.

## **2. Objectives**

The objectives of the workshop were to:

5. Review Sandwatch activities in Kiribati over the period 2010 – 2015
6. Provide training in Sandwatch activities to teachers new to Sandwatch
7. Introduce new Sandwatch activities such as the Sandwatch International Database and the Beach profile method.
8. Plan Sandwatch activities for 2016 and beyond.

### **3. Logistical Arrangements**

The workshop was arranged and supported by the MFMR and the ESAT project. It was held at the maneaba by the ESAT office in Betio. Transportation was provided for the participants. Fieldwork was carried out at the adjacent lagoon- and ocean-side beaches.

### **4. Participants**

The participants list is presented as Annex 1. There were 25 participants, 15 female and 10 male. The participants included sixteen teachers almost equally divided between junior secondary school teachers and senior secondary school teachers. Most of the teachers were new to Sandwatch. Other participants came from the MFMR, Ministry of Education and the Curriculum Development and Resource Centre (CDRC), Ministry of Environment, Lands and Agricultural Development (MELAD), SPC and the United Nations Educational, Scientific and Cultural Organisation (UNESCO).

### **5. Workshop Agenda**

The workshop agenda is presented as Annex 2, although some changes had to be made to the schedule due to the need to complete fieldwork at particular states of the tide. The first day focused on an introduction to Sandwatch and review of Sandwatch activities in Kiribati between 2010 and 2015. The second day was devoted to the review and practice of Sandwatch methods and the third day focused on future planning.

### **6. Results**

#### **6.1 Day 1 Activities**

The workshop started with the showing of the Sandwatch videos to give participants an overview of the programme. These ten short videos, each about 5-minutes long, each focus on a particular chapter of the Sandwatch manual. Copies of the videos were left with several participants as well as with MFMR and CDRC and can also be viewed at <https://www.youtube.com/user/sandwatchvideosENG>

After the introductions and welcome, the workshop focused on a review of the Sandwatch activities between 2010 and 2015 and was led by presentations from representatives of MFMR and the CDRC.

#### *Activities between 2010 and 2015 – Highlights (presented by MFMR)*

- Since 2010, support has been provided for Sandwatch activities by ESAT project.
- 2010 – 2011, Sandwatch Committee established.
- 8 schools were involved and each school tried out different Sandwatch activities.
- Beach poem in English and Kiribati integrated into primary school syllabus for grades 1 and 2.
- 2012, first Sandwatch Day held with funding support from GIZ.
- GIZ also supported equipment purchase.
- 2014, 2<sup>nd</sup> Sandwatch Day.
- Activities have focuses on beach clean ups, school competition, Sandwatch presentations to schools in Tarawa and outer islands, Sandwatch presentations to communities in Nanikai and Teaoraereke.
- Project proposals for future funding prepared. One to the UNESCO Japan Education for Sustainable Development competition (not successful); and a second to the Policy and Development Division in the Ministry (no response yet).

### *Presentation from CDRC*

Vision of CDRC is “*Nurturing our children and young people in Kiribati to become wise and responsible citizens able to adapt to, and participate in their changing world.*” The curriculum reform started in 2012 and has been undertaken for years 1-6 (years 5 - 6 are still in progress).

Sandwatch concepts have been incorporated in the curriculum for years 1 – 6 in environmental science and Kiribati community study. The following materials have been produced:

- Year 1 and 2 syllabuses: Kiribati Reader: Na kanga n taraua au Otanibanin
- Year 1 and 2 English Reader: Playing on the Beach.
- Year 3 Term 3: English Reader: Save our Beach
- Year 1 and 2: Kiribati Reader: Weather
- Posters of Year 1 and 2 : Our Beach
- Posters of Year 3 and 4: Angry Waves

The reform of the syllabuses for junior secondary school and senior secondary school will start in 2017 and there is potential for incorporating Sandwatch activities that promote education for sustainable development.

Following these two presentations there were discussions on:

- What have we achieved
- What went well
- What could have been done better
- How can we continue activities when the ESAT project finishes

#### *What have we achieved?*

- Coastal clean-ups
- Sandwatch Day
- Committee meetings
- Integrating Sandwatch concepts into the curriculum
- Planting trees/mangroves
- Beautifying the beach
- Educating young minds to safeguard, cherish and love the beach

#### *What went well?*

- Community support for clean-ups e.g. Nanikaai
- School beach clean-ups
- Integration into the curriculum

#### *What could have been done better?*

- School competition
- Provision of green bags
- Availability of equipment
- Continuity of training
- Financial support especially from relevant ministries and from parents for clean ups

- Household clean-ups
- Planting mangroves
- Better public awareness
- More regular Sandwatch committee meetings
- Clear action plan
- Obtaining support from school principals

*How can we continue activities when the ESAT project finishes?*

- Preparation of funding proposals
- Volunteerism
- Local fund raising from NGOs and government
- Integrate Sandwatch into capacity building of teachers nationally such that Sandwatch content is incorporated across the subject areas
- Develop reporting strategies for the ongoing practice of Sandwatch activities.

During the afternoon there was a general presentation on Sandwatch covering the background; the Sandwatch approach – **M**onitoring, **A**nalysing, **S**haring the findings and **T**aking action (MAST); a short introduction on the Sandwatch international Database; how Sandwatch contributes to Education for Sustainable Development; and Sandwatch as a tool for adapting to climate change.

Presentations describing the Sandwatch methods were then given prior to field practice of the methods the next day.

A short +/- evaluation at the end of the day showed that most of the participants were satisfied with the activities on the first day, both the presentations and the discussions. Key changes requested related to better time management; more practical work; copies of the power point presentations to be made available; and for all participants to get fully involved.

## 6.2 Day 2 Activities

After a brief recap of Day 1, the group went down to the ocean-side beach at low tide for a demonstration of the methods for selecting the observation beach; observing and recording; measuring erosion and accretion; collecting samples for beach composition; human activities; and measuring beach debris. Following this, three separate groups practised the methods themselves along different beach lengths.

A demonstration of the method for measuring beach profiles was given to one group.

The groups returned to the meeting room and prepared power point presentations showing their results. These were then presented to the entire group.

At the end of the afternoon the entire group went to the lagoon-side beach for a demonstration of methods for measuring waves and longshore currents at high tide.

Water quality measurements were only discussed, not demonstrated, since no water quality kits were available. Thermometers were available and these were demonstrated together with a short talk about coral bleaching episodes and how these are related to periods of higher than normal sea temperatures.

### 6.3 Day 3 Activities

A demonstration of the Sandwatch International Database was given at the beginning of Day 3 and this generated considerable interest. The internet connection was not strong enough to allow participants to practise on the database themselves.

A short demonstration of the software used to analyse and generate beach profiles was also given and a copy of the software programme left with MFMR.

Participants completed their measurements from Day 2, including beach composition analysis.

Following this, participants divided into groups to discuss planning Sandwatch activities in Kiribati for 2016.

Each school identified the specific activities they are going to work on with their students in 2016 and these commitments were recorded by MFMR who will develop a work plan.

A compilation of the key recommendations from the three groups is as follows:

- The Sandwatch Committee to meet once every term i.e. three times a year.
- The Ministry of Education and the MFMR to lead the committee.
- The Sandwatch Committee to monitor the Sandwatch activities being carried out by the schools and each participating school to provide a report each term.
- The Sandwatch Committee to reach out to communities, especially those not doing beach clean-ups.
- Data to be entered in the Sandwatch International Database.
- Sandwatch equipment to be provided especially tape measures for each participating school.
- Hold a Sandwatch Clean-up Day, a Sandwatch Day and a Sandwatch competition.
- Conduct fund raising.
- Have a Sandwatch uniform.
- Plant mangroves as a climate change adaptation measure.

There was some discussion after the presentations. The MFMR have an activity where they reach out to outer islands and conduct community visits and they have been using these visits as an opportunity to introduce Sandwatch.

MFMR also plan to add Sandwatch to radio broadcasts.

The CDRC are presently working on the school curriculum for Years 4 and 5. In 2017 they expect to start on the revision of the Junior Secondary School curriculum and will include aspects of Sandwatch.

A request was made for certificates of participation.

The representative from UNESCO provided information about the schedule for submitting proposals for UNESCO's participation programme and also agreed to contact the Education Department in UNESCO about the potential for funding for CDRC's curriculum review.



## 7. Workshop Closing and Evaluation

The workshop was then then closed. The SPC trainer and the representative from UNESCO were thanked for their participation.

Participants completed the evaluation form. The form and an analysis of the responses are presented as Annex 3.

Fifteen participants completed the evaluation form, seven male and seven female (one participant did not complete this question).

The first question focussed on the usefulness of the training and 80% of the respondents gave the training the highest rating of very useful.

The second question asked whether the participants were confident with using the Sandwatch methods and 60% of the respondents gave the highest rating of being very confident while the other 40% were moderately confident.

Water quality monitoring and erosion and accretion (especially beach profiles) were the main areas where further training was requested.

The responses to the other questions are detailed in Annex 3.

Key contact and web addresses were provided to the participants as shown in the table below.

<b>Sandwatch online resources</b>	<b>Web/email address</b>
Sandwatch website	<a href="http://www.sandwatch.org">www.sandwatch.org</a>
Sandwatch training videos	<a href="https://www.youtube.com/user/sandwatchvideosENG">https://www.youtube.com/user/sandwatchvideosENG</a> and MFMMR also have copies.
Sandwatch International Database	<a href="https://sandwatchdb.org/beachdata/">https://sandwatchdb.org/beachdata/</a> to obtain a user name and password, send an email requesting this Gillian Cambers at g_cambers@hotmail.com
Sandwatch Facebook page	<a href="https://www.facebook.com/sandwatch.programme">https://www.facebook.com/sandwatch.programme</a>
Trainer's contacts (Gillian Cambers)	G_cambers@hotmail.com

## WORKSHOP PHOTOS



*Small group discussions session*



*Large group discussion*





*Measuring beach width from a reference point*



*Measuring beach width to the high water mark*





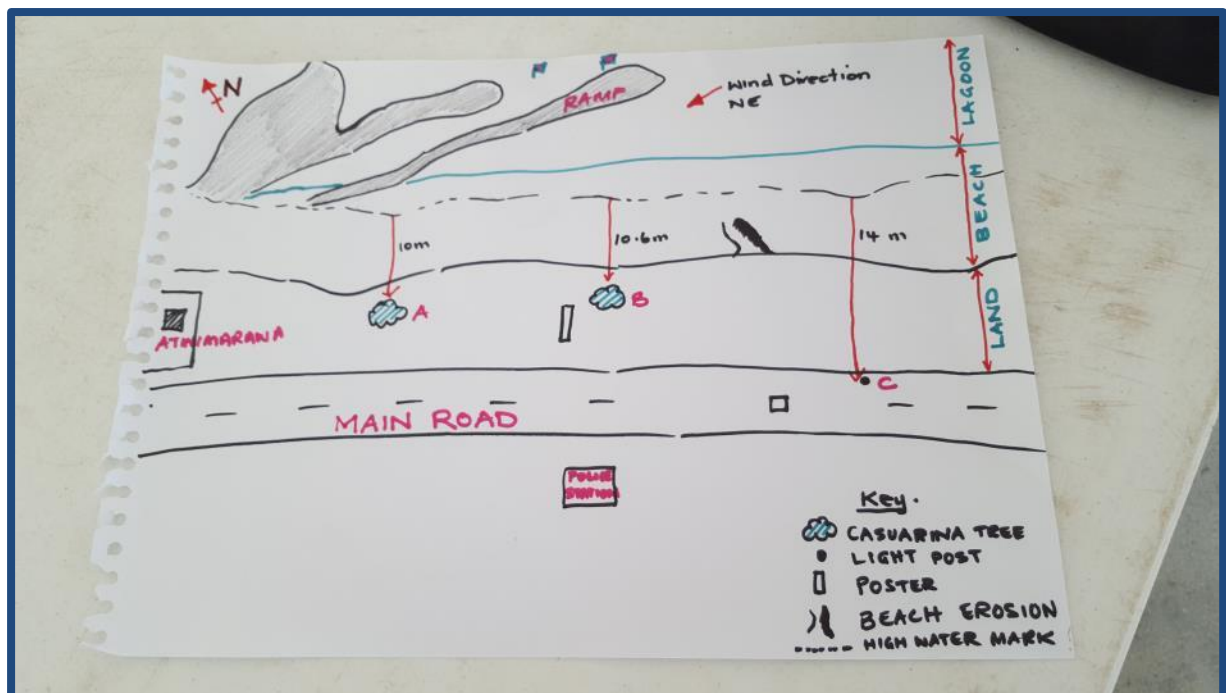
*Recording the measurement*



*Collecting the debris and recording the different categories of debris*



Reading the Abney level for beach profile measurements



Preparing a sketch map





*Measuring wave direction with a compass*



*Measuring sand size, sorting and shape*

## Annex 1 List of Participants

Name	Gender	Agency	Email
Tamiaana Buatia	F	KGV & EBS	<a href="mailto:btamiaana@gmail.com">btamiaana@gmail.com</a>
Nanginiman Nakuau	F	Santa Maria College	
Sentima Letia	F	St. Patrick's College	<a href="mailto:Sentima.stpat@gmail.com">Sentima.stpat@gmail.com</a>
Neeti Meia	M	Sacred Heart College	<a href="mailto:Neez.antele@gmail.com">Neez.antele@gmail.com</a>
Beniati Oben	M	KGV & EBS	<a href="mailto:obenbeniati@gmail.com">obenbeniati@gmail.com</a>
Tikuanana Tekeaa	M	KTC	<a href="mailto:Tikuana2@gmail.com">Tikuana2@gmail.com</a>
Bubunrenga Maere	F	JSS Betio	<a href="mailto:maerebubunrenga@gmail.com">maerebubunrenga@gmail.com</a>
Taebo Kiteon	M	JSS Animaro	<a href="mailto:taebomanuera@gmail.com">taebomanuera@gmail.com</a>
Betaaau Irooti	F	JSS Betio	<a href="mailto:bettyirooti@gamil.com">bettyirooti@gamil.com</a>
Taukoroa Erene	F	JSS TUC 1	<a href="mailto:taukoroaerene@gmail.com">taukoroaerene@gmail.com</a>
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Tebete England	F	MFMR	<a href="mailto:tebetee@mfmr.gov.ki">tebetee@mfmr.gov.ki</a>
Khalissa Ikhlef	F	UNESCO-Paris	<a href="mailto:K.ikhlef@unesco.org">K.ikhlef@unesco.org</a>
Gillian Chambers	F	Sandwatch Foundation/SPC	<a href="mailto:g_chambers@hotmail.com">g_chambers@hotmail.com</a>

## Annex 2 Workshop Agenda



### Kiribati Sandwatch Workshop 8-10 December 2015 AGENDA

Time	Activity
<b>8<sup>th</sup> December 2015</b>	
<b>Introduction and Review of Sandwatch Activities in Kiribati 2010 - 2015</b>	
8.30 – 9.30	<ul style="list-style-type: none"> <li>• Workshop opening</li> <li>• Introductions</li> </ul>
9.30 – 10.30	Overview of Sandwatch: Presentation and discussion Dr Gillian Cambers, Sandwatch Foundation
10.30 – 11.00	Morning tea
11.00 – 12.00	Sandwatch activities in Kiribati: 2010 – 2015 <ul style="list-style-type: none"> <li>• Presentation – Ministry of Fisheries and Marine Resources</li> <li>• Presentation – Ministry of Education</li> </ul>
12.00 – 1.00pm	Review of Sandwatch activities in Kiribati 2010-2015: Small group discussion session <ul style="list-style-type: none"> <li>• What have we achieved</li> <li>• What went well</li> <li>• What could have been done better</li> <li>• How can we continue activities when the ESAT project finishes</li> </ul>
1.00 – 2.00	Lunch
2.00 – 4.00pm	Introduction to Sandwatch – Observing and Recording Work on beach, followed by work at venue
4.00pm	End of Day 1
<b>9<sup>th</sup> December 2015</b>	
<b>Review and Practise of Sandwatch Methods</b>	
8.30 – 9.30	Recap of Day 1
9.30 – 10.30	Review of Sandwatch methods for measuring: <ul style="list-style-type: none"> <li>• Erosion and accretion</li> <li>• Waves</li> <li>• Longshore currents</li> <li>• Beach composition</li> </ul>



<b>Time</b>	<b>Activity</b>
10.30 – 11.00	Morning tea
11.00 – 1.00pm	Beach session to practise Sandwatch methods followed by work at venue
1.00 – 2.00pm	Lunch
2.00 – 4.00pm	Review of Sandwatch methods for measuring: <ul style="list-style-type: none"> <li>• Water quality</li> <li>• Beach activities</li> <li>• Beach debris</li> <li>• Plants and animals</li> </ul> Beach session to practise methods followed by work at venue
4.00pm	End of Day 2
<b>10<sup>th</sup> December 2015</b> <b>Planning Sandwatch Activities in Kiribati for 2016</b>	
8.30 – 9.30	Recap of Day 2
9.30 – 10.30	Entering the data from Day 2 on the Sandwatch International Database
10.30 – 11.00	Morning tea
11.00 – 1.00pm	Planning Sandwatch activities in 2016: Small group discussion sessions
1.00 – 2.00pm	Lunch
2.00 – 3.00pm	Preparation of an Action Plan for Sandwatch in Kiribati for 2016 to include: <ul style="list-style-type: none"> <li>• Leadership</li> <li>• Funding</li> </ul>
3.00pm	Closing of workshop and evaluation

## Annex 3 Evaluation Form and Analysis of Evaluation Results

### Kiribati Sandwatch Training Workshop

#### Evaluation Form

Gender:

Female

☐

Male

☐

**How useful was the training? On a scale of 1 – 5, with 1 being Not useful and 5 being Very useful**

Using the rating system given above, indicate (with a tick) your rating for this workshop.

1	2	3	4	5

**How confident are you to use the Sandwatch methods? On a scale of 1 – 5 with 1 being Not confident and 5 being Very confident**

1	2	3	4	5

**Which areas (if any) would you like more training in?**

--

**Name two things we did in the workshop that were most useful to you**

--

**Name 2 things that you plan to do in your school and/or community in 2016**

--

**Other general comments**

--

## **Results of Evaluation**

15 participants completed the evaluation form, seven were male, 7 were female and one person did not fill in this question.

### **Question 1: How useful was the training (On a scale of 1-5 with 1 being Not useful and 5 being Very Useful**

Rating 3 = 1 participant

Rating 4 = 2 participants

Rating 5 = 12 participants

### **Question 2: How confident are you to use the Sandwatch methods? On a scale of 1 – 5 with 1 being Not confident and 5 being Very confident**

Rating 3 = 3 persons

Rating 4 = 3 participants

Rating 5 = 9 participants

### **Question 3: Which areas, if any, would you like more training in?**

- Water quality 8
- Erosion and accretion 4
- Beach profiles 4
- Plants and animals 1
- Longshore currents 1
- A review of all the methods would be useful at timely intervals 1

### **Question 4: Name 2 things that we did in the workshop that were most useful to you**

- Human activities 6
- Erosion and accretion 5
- Observing and recording 4
- Longshore currents 4
- Beach composition 3
- Beach profiles 2
- Beach debris 2
- Waves 2
- Sandwatch International Database 1
- Sandwatch approach 1

### **Question 5: Name 2 things you plan to do in your school or community in 2016**

- Observing and recording 8
- Beach debris 6
- Clean the beach 5
- Erosion and accretion 4

- Human activities 4
- Beach profiles 1
- Waves 1
- Beach composition 1
- Encourage teachers in the outer islands to do Sandwatch with their students 1
- To apply Sandwatch approaches with communities in a simple way so they can monitor the changes to their beaches 1
- Using the findings to create awareness about climate change 1
- Set up a committee and create awareness about the Sandwatch approach 1

**Question 6: Other general comments**

- Need equipment for the schools
- Repeat this workshop regularly
- The workshop is very interesting and useful to us teachers so that we can convey what we have acquired to our students next year. The only weakness I have come across is time management – the workshop should start and end on time
- Need more practice on putting the data on the database
- Excellent
- The 3-day workshop is quite good and useful for our schools and communities so that we build confidence to instil this information in new generations
- Great, thanks to you for your time and effort to run this workshop
- The workshop needs more days to cover other practical activities
- This workshop is useful with practical work and I love the activities. Another suggestion is for a certificate for those who have participated. Overall a fabulous and magnificent workshop.
- Need answers to our findings
- It is a very good workshop but need to show our data on the database 10 years from now.
- The workshop as a whole is beneficial both to the community and the nation as a whole especially as all our islands are surrounded by beach
- I really enjoyed this workshop as it was my first time with Sandwatch and its plans and approaches.