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# The Sandwatcher

PROMOTING GRASSROOTS CONSERVATION OF BEACH ENVIRONMENTS

Photo: La Sagesse Beach, Grenada by Crystal Marie Bernal

MINISTRY OF FOREIGN AFFAIRS OF DENMARK



Black River Foundation



United Nations Educational, Scientific and Cultural Organization

## The Gambia holds national Sandwatch workshop



### Inside this issue Sandwatch activities in 20 countries worldwide!

*Including Australia, Bahamas, Barbados, Belize, Cape Verde, Cook Islands, Cuba, England, Fiji, Gambia, Grenada, Guyana, Kenya, Kiribati, Mayotte, New Zealand, Puerto Rico, Senegal, Seychelles, Trinidad, Qatar... and much, much more!*

**In August 2009, three teachers from The Gambia attended the Sandwatch-UNESCO "Train the Trainers" Regional Workshop for West Africa which was held in Praia, Cape Verde Islands.**

Following on from the Regional Workshop, a **National Sandwatch Workshop was held in The Gambia, 19-20 April 2011.** More than 50 educators from 10 schools from all over the country were involved. The goal was to train more teachers in The Gambia in Sandwatch methods, so that the project can expand within the country with more students, schools and communities getting involved in protecting their coastal environments.

The Secretary General of The Gambia UNESCO National Commission (NATCOM), Mrs. Sukai Bojang, launched the Sandwatch project at the commencement of the Implementation of the UNESCO 2010 – 2011 Participation Programme.

In her opening statement, she described the Associated Schools Project Network (ASPnet) as an incubator or laboratory of ideas. UNESCO has been providing funding for ASPnet activities under the Participation Programme.

Mrs. Bojang reiterated that, since 1999, marine and coastal environmental issues have come to the forefront of UNESCO's programme with the launching of the Sandwatch project. The Sandwatch project is an educational process which provides a new vision of education, one that seeks to empower people of all ages to assume responsibility for creating and enjoying a sustainable future.

She also expressed her gratitude for the respect The Gambia's ASPnet schools have gained at the UNESCO's headquarters in Paris, France, as a result of their accomplishments in many international initiatives.

The Sandwatch project, has also initiated a landmark relationship between the UNESCO NATCOM, the National Environment Agency and the Adaptation to Coastal and Climate Change project in The Gambia.

Mrs. Bojang also thanked her colleague Professor Youssef Dambell, Secretary –General of the Malian NATCOM for UNESCO for joining the launching of the Sandwatch project in The Gambia. **(continued on page 4)**





## Inside this Issue...



UNESCO Officials and fifty educators from ten schools attended a National Sandwatch Workshop in The Gambia, April 19-20th, 2011.

Welcome to the twelfth (12th) edition of **The Sandwatcher**, the Official Voice of The Sandwatch Foundation.

This issue highlights the truly global nature of Sandwatch as it contains articles and photos from Sandwatch teams in 20 countries all over the world, from the Caribbean, Indian and Pacific Oceans, Africa, Australia and Europe.

Thanks to all of you, Sandwatch has become a recognized global environmental project.

Just some of the highlights of this issue include...

- Report on a **National Sandwatch Workshop** held in **The Gambia, West Africa**
- New Sandwatch teams are started in **Qatar, Senegal, Cape Verde and Belize**.
- An update on the new Sandwatch online **database project**
- Sandwatchers in **Kenya** report on a biological hazard in **Lake Victoria**
- Sandwatch continues to expand in Pacific region, **Kiribati, New Zealand, Australia, Cook Islands and Fiji**
- Sandwatch activities in the **Caribbean: Cuba, Guyana, Bahamas, Barbados and Puerto Rico**
- **Sandwatch continues in the Indian Ocean: Maldives and Seychelles**

Sandwatch launches a brand new, updated website

Plus amazing updates, stories and photos from Sandwatch teams.

## Sandwatch and ESD in Cuba



Sandwatch have their own YouTube channel, so tune in to see our videos from teams all over the world [www.youtube.com/user/SandwatchFoundation](http://www.youtube.com/user/SandwatchFoundation)

There are a large number of environmental problems in the world – many of them have been created by man’s activities. The teachers and students of the **Pre-University Institute of Exact Science Ernesto Guevara (IPVCE) in Santa Clara, Cuba** have been working now for more than a decade, as part of the **Sandwatch programme**, to educate coastal communities in Villa Clara to protect their beaches. This work has been based on the Sandwatch project which has helped the students and the communities work together to help people value their beaches within the framework of education for sustainable development.

The Sandwatch project at the IPVCE Ernesto Guevara has continued for a decade now at the Caibarien and Isabela de Sagua beaches, located in the north of the province of Villa Clara. A number of different activities have been conducted, focusing on environmental education and towards environmental planning for the coastal zone. These plans also contain provisions to adapt and mitigate the impacts of climate change on coastal ecosystems in the coming years.

Students have undertaken surveys of the plants and animals on the beach. The results of these surveys show that although laws exist to protect beaches and sands, these laws are not always fully implemented. Fishing activities in zones bordering the beach are also impacting the marine ecosystem which is already under pressure from the invasive lion fish. The students have communicated the results of their findings to beach users, coastal communities and decision makers and their concrete results are contributing to changes being made in the laws and regulations. The students have also shared their knowledge about invasive species like the lionfish with these groups. A sample survey table is shown below.

Beach	Birds	Reptiles	Molluscs	Plastic	Paper	Wood	Metal	Glass
Caibarien	16	18	37	33	42	15	27	12
Isabela de Sagua	35	20	30	45	55	60	25	30



Sandwatch has been active at the IPVCE Ernesto Guevara in Cuba since 2001

However, there is always more work to do. We call upon organisations like UNESCO that promote peace and the rejection of damaging and destructive policies that result in the loss of biodiversity and undermining of environmental stability, to help support the provision of additional garbage bins; more educational programmes for beach users including the supply of materials like posters; and to hold workshops, conferences and debates targeting beach users and coastal communities to take action to protect the beach.

**By Daniel Bulgado Benavides, IPVCE Ernesto Guevara**



## Sandwatch helps save Bahamas beaches



Old fishing net under the dune re-exposed after the passing of Hurricane Irene in August 2011

Hope Town Primary School in Hope Town, Abaco, **Bahamas** has been involved the UNESCO **Sandwatch Project** for over 10 years.

The 60 students in this 116 year old historic, red and white school have been involved in many projects from creating brochures that teach reef etiquette on sustainable use of their famous patch reef to cutting a huge floating fishing net off their study area reef to writing a comic book for kids on what they can do to feel empowered about saving their environment.

Their very popular, small, 6 mile long island has been struck by 3 major hurricanes since 1999 and the 4th hurricane, **Hurricane Irene**, just blew through at 115 mph with gusts up to 140 mph on August 25, 2011. Sandwatch Country Co-ordinator, Mrs. Candace Key, who is also the Hope Town School Principal, is proud of the fact that the area where the school has done several of their UNESCO Sandwatch projects came through the strong storm in great shape!

After the last hurricanes washed out much of the beach in front of the Hope Town Harbour Lodge Resort, which is the area they use as their project site, the students were instrumental in replanting the dunes (that were pushed back up into place by beach bulldozers) with sea oats. Throughout the last 6-8 years the sea oats have matured and covered the dune well. When Hurricane Irene struck this August the dune held very well with no erosion! The school is very proud that their labours paid off!



Several years ago The Hope Town Sandwatchers removed this fishing net from their reef and used it to stabilize the nearby sand dunes by planting sea oats on and around it

The sea oats took a beating but they will be standing tall and proud again soon guarding their valuable dune. During another Sandwatch project, several students and a teacher swam out to the test site patch reef to remove a very large, green, floating fishing net which had settled over the fragile patch reef. The net was wedged on the reef and it took

several students many hours to cut it off and drag it ashore. It was far too heavy to be moved and the resort manager suggested using it to hold sand in an area that was prone to erosion from heavy rain washouts. The students managed to drag it to the area where it has become mostly covered by sand but has greatly reduced any erosion in that area. Throughout Hurricane Irene the green fishing net held the beach sand in that spot! What once was a damage causing object was successfully turned into a useful environmental instrument. The students also planted sea oats on the

property next to the resort. That property was sold and a very large house was built. In order to extend the property, the new owner plowed sand over the sea oats. Students protested and the owner promised to plant sea oats on the "extension". It turned out that he planted a few and filled the rest of the area with the invasive, nuisance plant known as Hawaiian Sea Grape, which does not have the deep seated roots that sea oats have. During this storm, the whole beach in front of his house washed out! A lot of valuable environmental lessons were learned during this hurricane by Sandwatchers—young and old! **Candace Key, Hope Town Primary School**



Old net and the sea oats held the dune together despite the severe storm surge and pounding waves

## Sandwatchers stabilize dunes in Western Australia



**Students planting in the Coogee Beach dunes, Perth, Western Australia.**

An important component of the South Coogee Primary School **Sandwatch program** is "Taking Action". This winter, after rain had saturated the dunes, students planted coastal species to protect the dunes from erosion and to create habitat for native animals such as bandicoots (a small ground mammal the size of a rabbit) reptiles and insects. Planting native species also assists in the control of invasive weeds and encourages students to think about climate change and sea level rise and the impact storms and higher tides might have on Coogee Beach.

South Coogee Primary School teacher Mr Steven Lushey said, "The students enjoyed the planting activities as they understand how important it is to protect the dunes from erosion and they also enjoy the opportunity to visit the beach and experience nature while having fun at the same time". "**Sandwatch** is an excellent opportunity for the students to learn about the coastal environment, gain an understanding of potential climate change issues and have exposure to student activities in other parts of the world" he said.

**Craig Wilson | South Metro Coastcare Officer, Perth Region** [www.perthregionnrm.com](http://www.perthregionnrm.com)



Sandwatchers in Western Australia, stabilize their sand dunes by planting native species



## The Gambia National Sandwatch Workshop (continued front cover)



The Gambian teachers were given lessons on Sandwatch methodology on their local beach

The occasion was used to sign an agreement between the Mali and The Gambia NATCOMs by the two Secretary Generals.

With funding from UNESCO under the Participation Programme 2010-2011 biennium, The Gambia UNESCO ASPnet conducted its first national training workshop on Sandwatch, climate change and environmental awareness for school coordinators and students for schools in the greater Banjul area.

Ten ASPnet schools attended and each school was represented by two teachers and three students (five participants). Fifty participants from the ASPnet were trained during the workshop. The workshop was the first activity under the ASPnet UNESCO funded project "Promoting initiatives in support of United Nations Decade of Education for Sustainable Development in UNESCO Associated Schools in The Gambia".

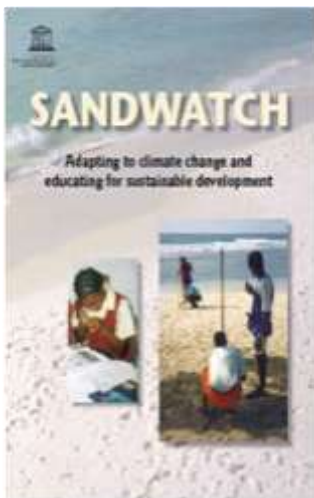
The project is multifaceted and aims to build the capacity of teachers and students from 22 schools in The Gambia so that they can sensitize their communities about climate change, environmental awareness, coastal protection and education for sustainable development.

### The objectives of the training workshop were:

1. To assist teachers and students with the help of local communities in applying their information and local knowledge to the wise management and enhancement of their beaches.
2. To reduce the level of pollution in adjoining seas, oceans, creeks and rivers.
3. To share information on Sandwatch methods of monitoring and analyzing data gathered on the beach environment.



Measuring the width and making observations of beach usage are two of the simplest data to record



The new Sandwatch Manual is now available in French and English and soon in Spanish and Portuguese

4. To involve schools, teachers and students in the scientific observation, measurement and analysis of beaches using an inter-disciplinary approach, language, arts, biology, geography, history, creative arts etc.

The ASPnet Coordinators and students acquired the following by the end of the workshop:

- Learned to work together to critically evaluate the problems and conflicts facing their beach environment;
- Acquired technical competence in developing sustainable approaches to the problems and conflicts.
- Changing their own lifestyles and habit and to be in the position to sensitize the youth and adults for them to be aware of the fragile nature of the marine and coastal environment and the need to use it wisely.

This workshop will be followed by a similar one for the other ASPnet Schools upcountry to be held at Mansakonko in June 2011.

Other ASPnet activities include

- A school-based waste management project with the provision/production of waste bins (inscribed with UNESCO and ASPnet logos) for schools to promote a healthy school environment.
- A Green School Environment Project: Planting of fruit trees in school environments and provision of gardening materials to provide shelter, food will conclude the project.

## Google Earth: A great teaching tool

An increasingly important part of Sandwatch workshops and training is not only showing educators how to use the Sandwatch manual, and methodology, but also how to network and expand your project using inexpensive or free technologies. This includes using **Google Earth** to show people where your country/community/school/beach is located, or using it to teach your students geography. It is very popular with teachers, especially the first time they use it.

It is free and easy to use! Please ask us if you need help on how to best use it for Sandwatch.





## Sandwatch (Guardarenas) in Puerto Rico



**The Sandwatch Project was developed as a program that would create awareness about the conservation and sustainable use of marine and coastal resources.**

In Puerto Rico, Sandwatch has proven its effectiveness as an educational tool. A total of eighteen groups on sixteen beaches from all around Puerto Rico form part of Sandwatch. In addition, a group from Mexico obtained information about the project through our blog (<http://seagrantpr.org/guardarenas>) and started the study of three beaches in the region of Campeche.

**The University of Puerto Rico Sea Grant College Program (UPRSGCP)**, with the direction and advice of Lesbia Montero and Delmis Alicea, and the collaboration of our marine educators, has offered several workshops in order to train teachers and community leaders on data management, the appropriate use of the equipment required for Sandwatch activities, and the implementation of these activities within the group. For example, in April 2011 April, Delmis Alicea, Jorge Casillas and Diana Beltrán gave a workshop about Sandwatch to teachers that are involved with Center for Environmental Education, Conservation and Interpretation of the Interamerican University, Metropolitan Campus.

Last semester, the UPRSGCP offered a workshop for data management and the use of specific software, such as: Profile, Excel, and Power Point. Furthermore, Delmis Alicea gave a talk to parents that are home schoolers and are interested on the discussion of environmental topics and the development of new educational activities with their kids. During Fall 2011, the UPRSGCP will distribute water quality measurement equipment among Sandwatch participants and will also offer training on the use of said equipment. **Additionally, Jorge Casillas, marine educator, and Omar Ortiz, video editor, are currently working on videos that show, step by step, the different procedures required by every activity included in the Sandwatch manual.** These videos will be available during Fall 2011.

We, also, want to recognize the support and collaboration of the Marine Sciences Department in the University of Puerto Rico, Mayagüez Campus, and the Caribbean Regional Association (CaRA), in the process of implementing Sandwatch in Puerto Rico and giving the materials to the teachers and community leaders.

**Cristina Damaris Olán Martínez and Odette M. Ortiz Mercado, UPR Sea Grant College Program**



Jorge Casillas and Omar Ortiz working on a "How to do Sandwatch" DVD for Puerto Rican schools



A google earth map showing the 16 beaches around Puerto Rico that Sandwatchers are studying

## Sandwatch partners with ECOMAR & WWF in Belize



### Sandwatch Partners with ECOMAR & WWF in Belize for Marine Turtle and Beach Project

The Sandwatch Foundation was contacted in May 2011 by Linda Searle of ECOMAR ([www.ecomarbelize.org](http://www.ecomarbelize.org)) a Belize based marine conservation organization. She and her organization were interested in combining Sandwatch into their existing environmental studies particularly as they relate to the protection of marine turtles and their nesting environments.

In particular ECOMAR was eager to receive 25 copies of the new Sandwatch Manual for an upcoming Sea Turtle Workshop that was planned for Gales Point, Belize in June. And so with the invaluable assistance of Nadia Bood at **WWF Belize**, the Belize National Commission for UNESCO and the ever helpful staff at UNESCO HQ in Paris, 25 copies of the new manual were shipped to Belize. As Ms. Searle reports "The field trip went really well. I am really excited about this aspect of the project because it is new to us in Belize. We monitor just about everything else, but not our beaches! But now we can thanks to you and everyone who assisted in getting these manuals to us" We would like to welcome ECOMAR and their partners into the Sandwatch global community and we look forward to seeing how the project progresses in Belize. *Discussions are also underway to hold a National Sandwatch Training Workshop for Belize for educators from all over the country.*

Sandwatch is also working with Nadia Bood and Lisa Carne at WWF Belize on incorporating Sandwatch into their existing sea turtle habitat protection projects. Based in Belize and Costa Rica, The World Wildlife Fund (WWF) is working on a project to understand how climate change might affect hawksbill sea turtles across the Caribbean. All 5 species of marine turtles that are found in the Caribbean are of special conservation concern, and climate change will likely become a very serious threat to them in the future. However, turtles are a really good way to study climate change because they depend on healthy beaches (on which they nest) as well as mangroves, sea grass beds, coral reefs (in which they develop and feed) and ocean ecosystems to live. If we can understand and mitigate how climate change may affect the beaches, it will not only benefit sea turtles, but also people who live along the coast.



The 2011 Sea Turtle Workshop was held at Gales Point, Belize June 6-9th



## Sandwatch and sanitation on Lake Victoria



Sandwatch students conducting a survey of fishermen on the shores of Lake Victoria

### Good sanitation the key to survival of Lake Victoria.

A survey by the Sandwatchers revealed that there are just two public toilets on the Kisumu beach serving more than 10,000 people and the fishermen who work and reside around the shores of Lake Victoria. "POOR sanitation among communities living around Lake Victoria poses a threat to their lives, to the existence of the lake and to the fishing industry" the Member of Parliament for Kisumu town has warned. He added that the problem was made worse by fishermen who say it is time wasting and anti-cultural to get out of their fishing boats and go to a toilet. So they have resorted to relieving themselves in the lake.

Kisumu is the third largest city in Kenya and is situated on the shores of Lake Victoria, with an estimated population of 500,000. Informal settlements currently hold around 50% of the population of Kisumu and the lack of any clear policy framework or effective programme for meeting the needs of the poor fishermen who live in this city has resulted in rapid expansion and overcrowding of these areas, with the majority of the residents here living in absolute poverty without access to sufficient water or sanitation. The majority of the residents defecate among the bushes or use 'flying toilets' (paper bags into which people defecate) and which are then thrown away many times landing in the fresh waters of Lake Victoria. The cost of digging and constructing latrines is too expensive for most, at Ksh.250 per foot. Where latrines are available they often malfunction at times of heavy rains.

We as the Sandwatchers Kenya chapter who are based at the Kisumu High School feel that we must do something about this grave situation. We attended a seminar dubbed "Eco-toilets". Eco toilets is project being adopted by environmental conservationists and has the support of the United Nations Environmental Program (UNEP), to assist rural populations have access to sanitation facilities, rain water harvesting system; storage and treatment; bio-digesters. Recently the during the seminar our local member of parliament for Kisumu Town West, Mr. Olago Olouch defined the eco-toilets as "a comprehensive exciting and innovative hygiene pack that can save the lake".



Most the latrines and sewers run directly into Lake Victoria

There is an urgent need for the construction of simple, low-cost, affordable toilets on the shores of the lake that are easy to build and maintain and are relatively free of odours and flies and do not drain into the lake. Eco-toilet concept is what we the Sandwatchers feel can work best for us. Eco-toilets deals with ABCD. That is; Architecture and construction, Behavioural change, Cleanliness and Disposal systems appropriate for sanitation (ABCD). The idea is to introduce a beautiful toilet concept that will bring inspiration to the fishermen, car washers and people around the lake to transform them into change agents who will then promote hygiene, sanitation and good health. We will in the next few months raise funds to begin construction of an eco-toilet on the shores of the Lake near our school. We need partners and friends of the Lake Victoria to join us. **By Peter Amunga, Sandwatch Kenya Chapter August 2011**



## Sandwatchers in New Zealand win award

### Stanmore Bay Primary School joined Sandwatch in 2006 and been very active in a number of projects.

It has been a busy time at Stanmore Bay School where everyone has been involved in several, successful projects taking place. The first of these led to our invitation to the inaugural Travel wise Awards Ceremony. Stanmore Bay School was one of six schools in the region to receive a GOLD travel wise award. It was presented to them by the Mayor of Auckland, Len Brown. Students Chantal Tennnant and Gaby Martin felt "honoured" to go up and receive the award on behalf of the school. Carol Abley, Principal felt that it was a significant milestone in the school's history. "Indeed it is an acknowledgement of the hard work, staff, students and the wider school community, have made, in promoting sustainable travel to and from school. We were delighted to accept this award." she said.

Secondly, the school's Earth Helpers recently held a litterless lunch day. Over 50% of the school brought lunches with no paper waste in them. According to the school caretaker, Mr Wayne Andrews, there was a significant reduction in litter on the school grounds. Reducing waste, recycling, a worm farm, composting and their own small vegetable gardens are helping to teach the students all about the importance of sustainable living. Maria Hatch teacher in charge of the projects said, "These are all huge achievements and we are very proud of our students for their efforts over the past few years."

It is hoped that the children will transfer this knowledge back to their homes and community, making where we live, just that much cleaner and greener. **Robyn Bennett, teacher**



The mayor of Auckland (L) presents the award to Gaby and Chantal with Matthew Rednall the Auckland Transport Regional Manager (R)

## Sandwatch on the move in England



We have named our Sandwatch group **Making Waves** and have achieved a lot over the last few months.



Although new to Sandwatch, students have already started to use Google Earth to map their beach.

We have been on several trips to our selected beach to take measurements and monitor litter. We have performed two assemblies to introduce Sandwatch to the rest of school and we have had an article in the school newsletter to introduce Sandwatch into our community. We worked very hard to put together a Making Waves Week event where we went into different classes with planned activities and created different pieces of work. This included making favourite sea creatures out of clay and thinking about how they move, and making a Loggerhead Turtle fact sheet, and at the end of the week we turned one of the rooms into the Sandwatch Gallery where we showcased all the work. This was met with an overwhelming amount of positive comments a true testament to the hard work of event involved. Lastly we went out and did a beach clean-up to show community spirit and encouragement to look after our environment. We have also been teaching our year 5 and 6 children about the **Jurassic Coast** which is very close to them and they have produced some amazing project work and appreciate their environment a lot more. For the end of this project we took them on a fossil hunting trip which was an amazing learning opportunity. Our group has

also been in regular contact with **Mayaro Environmental Wave in Trinidad and Tobago** who we hope to twin with. It's been a very exciting journey so far and I am looking forward to the beginning of the next school year to plan some more exciting events. I would like to take this opportunity to say how important an initiative Sandwatch is to help our children take the lead in sustaining their environment and I hope to be involved with it for a long to come. **Mel Berkauer, Kings Park Primary School Bournemouth**



Sandwatch looks forward to assisting with getting the programme established in England and the rest of the UK

## Sandwatch launches new website!

Way back in 2005 we launched the first Sandwatch website to provide a forum for Sandwatch teams to post their photos, data, project details and other information about their schools and communities. Of course back then there were only a few schools doing Sandwatch so it was a simple matter to keep up with the input. However, over the last several years Sandwatch has grown to include several hundred schools all over the world, from Australia to Zanzibar, Turks & Caicos Islands to the Seychelles, and Ghana to Kiribati. Our original website, built using the simple, easy to use Microsoft FrontPage website creation program was not designed to handle global websites with several hundred pages and literally thousands of photos and other documents. For that reason we have spent the last several months creating a brand new website from scratch! The new website, which is still at [www.sandwatch.org](http://www.sandwatch.org) was created using the far more advanced Joomla website program, which is a lot more flexible and interactive than our old site. We have already created pages for all national and many school homepages as well as copying over hundreds of photos and other documents. Of course it will take several more months of work to transfer the contents of the old site in its entirety over to the new one, but in the meantime, please take a few moment to examine your homepages and let us know if there are any errors, things you want to add or change. All previous copies of The Sandwatcher and eNews Issues are on the new site as well as copies of the new manuals. We are also currently working on developing an online database to make it much easier for everyone to record and chart their Sandwatch data over time. Please let us know what you think of the new website.



The new Sandwatch website is up and running, and new material is being added daily

## Sandwatch restarts in Guyana



### Sandwatch to restart in Guyana

We, the new Sandwatch Nature Club are currently in the process of revamping Sandwatch here in Guyana. We are setting up a committee with a Secretary, an environmentalist, one teacher a treasurer/accountant and coordinator and about 10 children (12-17 years old) to start. We are taking this plan to UNESCO National Commission for Guyana for endorsement .

The plan is to engage some voluntary recruitment for the resuscitation of Sandwatch in Guyana. We have already involved several experienced people, educators and environmentalists, including Ms. Allande Johnson-Hackette, an Environmental Science teacher who was also with me at the Sandwatch Youth and Climate Change Symposium that was held in Barbados in 2008. We also plan to register the club with UNESCO Clubs so that Guyana can have representation there. **by Paula Tulloch**



The new Guyanese Sandwatch team





## Sandwatch starts in Senegal



Educators from half a dozen West African countries attended the Sandwatch trainers workshop in Praia, Cape Verde

Upon my return from the **Sandwatch West African Regional Workshop, held in Praia, Cape Verde** we set up a structure involving the teachers in charge of Environmental Education (master and top students at several school). Activities have been carried out on the beach, including observation, measurement and monitoring of the level of beach erosion in Palmarin, Ngallou and Djifère, Sanitation inspections/tests and site visits have been conducted with local eco-guides Ndene Pierre Georges Faye and Moussa Diatta, which has attracted the attention of students and teachers about the risks to ecosystems (especially mangroves) against the phenomena of climate change and environmental destruction.

Students have been trained to teach and relay these messages at the opening of classes in October, to raise public awareness of these issues in each school and class. We also placed emphasis on the core business of education and awareness including holding a memorable holiday camp that was an academic success.



Senegal educators were well represented at the Cape Verde Workshop

Teachers have also been successful with their students in initiating a program of integration of improved stoves in all schools housing and canteens and now people are in the process of using them in their households.

In addition, students have incorporated the technique of construction efficient furnace-based raw materials (clay, cow dung, raffle millet) and three schools have benefited from this first phase and have had their wood consumption greatly reduced. The Minister of Renewable Energies, Mr. Louis Seck has installed ovens in all schools in the rural communities of Palmarin, an area badly affected by the effects of climate change.

The programme has successfully participated in the launch of National Environment Week and presented the students' work (éolines, drawings evoking the melting of glaciers, the emission of greenhouse gas emissions by factories) to the authorities. In short, they are the real vectors of change and ideas through sketches.

**By Mr. Abdou Senghor**



## Sandwatch updates from Maldives and Fiji



Since attending the **Sandwatch Regional Workshop in Seychelles in 2010**, representatives from the Maldives and Fiji have been planning how to begin Sandwatch in their countries.

In the Maldives, Aminath Mohamed from the Ministry of Education, has been working to include aspects of Sandwatch in the Science curriculum from Kindergarten to Grade 12. A training workshop for primary school teachers is planned later this year.

In Fiji, Dr. Brij Lal from the Ministry of Education has been working to include some of the environmental stewardship aspects of **Sandwatch** into scouting and guiding activities. In particular, environmental care is being included in every scout and guide camp. This includes environmental clean-ups and tree planting activities. The 11th Fiji National Scouts Jamboree in Nadi from 22nd to 26th August focused on the theme "Nature Nurtures Scouting". The weeklong event was attended by 1000 Scouts and all the activities were related to nature and the environment. Community work included beach clean-ups and tree planting. While opening the Jamboree the President of the Republic of Fiji, Ratu Epeli Nailatikau, said: "*Scouts had access to the natural resources required for their training and survival skills and had a duty to protect the environment.*"

A review of the school curriculum is underway in Fiji and environmental content is being integrated into the school curriculum starting with Years 1-4. Some of the concepts in the Sandwatch approach, e.g. observing and recording, analysing the results, and communicating with elders in the community to share their findings are included in the revised curriculum.

Also in Fiji, Morena Rigamoto from Live and Learn Environmental Education has been working to introduce a project on "Peace Building" in primary schools in Fiji. This project is being supported by the Ministry of Education. The project will introduce peace building principles to 200 schools. For those schools located on the coastline, this will be an opportunity to introduce Sandwatch. This project may also be expanded by Live and Learn to their programmes in **Solomon Islands, Papua New Guinea and Vanuatu**.

**By Aminath Mohamed, Ministry of Education, Maldives, Brij Lal, Ministry of Education, Fiji. Morena Rigamoto, Live and Learn Environmental Education, Fiji**



Fiji may use Boy Scouts troops as Sandwatch teams nationally



## Barbados environmental club starts Sandwatch



**The Sandwatch/Greenlanders Environmental Club was re-launched at the Lester Vaughan School** in Cane Garden, St. Thomas, Barbados thanks to collaboration with a local environmental NGO, Future Centre Trust, who was then known as Counterpart Caribbean. The club started under the direction of Ms Evadne Johnson, a Science teacher at the school and the club's coordinator. The club has participated in many projects over the years such as a bio-diesel project where used vegetable oil was turned into fuel, as well as many beach clean-ups, seminars and workshops on climate change and the effects of global warming.

In 2009 the club started its **Sandwatch Project** monitoring the beach at Long Beach, Christ Church on the south coast of Barbados. Long Beach and the surrounding Chancery Lane area is home to one of Barbados' last natural wetlands and to the many birds "visiting" the island that we are lucky enough to catch a glimpse of as we walk by on our way to the beach. The beach is also a local hotspot for wind and kite surfing and may also be used as a nesting area for turtles as many are spotted out in the water while we are on the beach.

As an example of some of the data collected on our monthly readings, from March 2010-2011 we noticed that there appears to be generally more sand at the eastern end than the western end. Also that variation in erosion and accretion appears to take place more at the western end. There seems to be more erosion of this section in the earlier months and as the year progresses more accretion is noticeable.

With members such as Skye and Matthew Shepherd, Spencer Mayers, Mitchell Burke and myself pushing the project and the club forward, we are looking to plot graphs with data collected so people may have a visual picture as to what is really happening on the beach and may even be able to estimate where the shoreline may be in a few years time. I would like to express my thanks to Ms Evadne Johnson, our teacher and Club Coordinator and Ms Nicole Garofano of the Future Centre Trust for assisting the club over the years. We look forward to continuing to collect this data in our Sandwatch area and in expanding the membership in the club in the coming school year.

**By Matthew Dillon Deane**



Regularly measuring the Barbados beach width is crucial to starting Sandwatch



The Barbados Greenlanders are off to a great start!

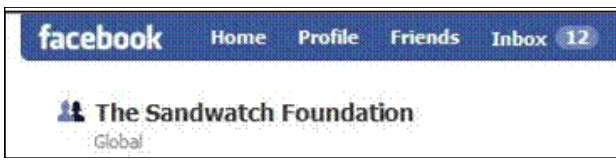
### Sandwatch at UNESCO Climate Change Meeting

Sandwatch representatives will be participating at the **UNESCO Experts Meeting on Climate Change Education for Sustainable Development and Adaptation in Small Island Developing States**, September 21-23, 2011 in Nassau, **The Bahamas**. This meeting will be attended by around 100 delegates from around the world. It is a continuation of UNESCO's International Seminar on Climate Change Education which was held in Paris July 27-29th, 2009.

As at the Paris conference, Sandwatch co-coordinators from several countries in the Caribbean, Indian and Pacific Oceans will be in attendance. Look for full details on the Sandwatch website and in the next issue of The Sandwatcher

## Join the Sandwatch Foundation's Facebook Forum

In its ever continuing efforts to keep up with rapidly changing technology, **The Sandwatch Foundation** has recently set up a dedicated 'Sandwatch Forum' on the globally popular social networking website **'Facebook'**. If you are a member, or are considering joining the website (it is free) then simply do a Facebook search using the phrase **'The Sandwatch Foundation'**, and it will pop up on your screen. Then you click on the dialog box that asks you if you would like to join this group...and that is basically it!



Sandwatch also has its own dedicated YouTube Video Channel at... [www.youtube.com/user/SandwatchFoundation](http://www.youtube.com/user/SandwatchFoundation)

Once a member of the Sandwatch forum you can post photos, links, ask questions, communicate with other members all over the world and be regularly updated on Sandwatch events and activities. The Facebook forum has just started and has already proven to be quite popular with members, especially students and we hope that you will join the forum and help to make it a viable, informative and fun way to exchange Sandwatch and community information.





## Testing water quality in the Cook Islands' lagoons



The Sandwatchers on Rarotonga created a relief model of the island to show how run-off enters the sea

### AVARUA SCHOOL LAGOON WATER QUALITY PROJECT

The Form 1 & 2 classes of Avarua School carried out an investigation project on **Rarotonga's Lagoon** led by their Science teacher Michael Papatua. This project was supported by various Government Ministries such as Marine, Education, Environment and Agriculture in providing the equipment and expertise to carry out the testing and as well as providing information on these issues. The objective of the project was to find out the health and water quality of the seven lagoons (Papua, Totokoitu, Kent Hall, Tikioki, Paringaru, Avana and Pouara) around Rarotonga. The following components were measured in these lagoons:

- Nutrient level (amount of phosphate, nitrate)
- Water clarity

Lagoon Name	Nutrient	Water Clarity	Lagoon Bacteria
Papua	High = Poor	Good	All 7 lagoons bacteria levels are okay.
Totokoitu	High = Poor		
Kent Hall	Nutrients are very high in these lagoons.	Poor	
Tikioki			
Avana		Good	
Paringaru			
Pouara			

The the graded the scale the Ma-

• La- goon bacte- ria findings for project were according to grading provided by Ministry of rine.



Rarotonga Sandwatchers taking notes at one of their lagoons

According to the findings the nutrients in these lagoons are very high. This is an indication that excess animal wastes, fertilizers from agricultures, discharge of sewage wastes or others have reached the lagoon. With these results the students expanded their research project towards land to see the causes for these problems. They have found out that there were a few pig pens near the streams that run off to the lagoon. A pawpaw plantation, and soil erosion on a land section that was cleared for a house site. were also near to the lagoons. A lot of tourist accommodations were on the beach which contributes to the problem through sewage wastes.

Through these findings the students have come up with the following recommendations for the Government Ministries:

- Ministry of Health – establish proper sewage or septic waste assessments for buildings on the coastline and to conduct a regular monitoring assessment.
- Ministry of Environment – toughen up the regulations on earth moving practices on house sections on the hill. Establish tough measures for the feeding of animals beside streams.
- Ministry of Agriculture – Encourage farmers to use the natural fertilizers
- Ministry of Marine – Regular check of the lagoon conditions and to inform the community on these conditions
- Ministry of Education – encourage schools to take up these learning opportunities as part of their school programme such as a proportion of learning activities from the **Sandwatch Project** - our students are the caretakers of our lagoon in the future.

In conclusion the students gave the following strong messages for everyone. We cannot change what's happening in our lagoon unless we change what we are doing on the land. People of this nation, **WE ARE THE PROBLEM, WE ARE THE SOLUTION.**



Rarotonga Sandwatchers turn their findings into public displays and science fair projects

**The Sandwatch website logs over 25,000 hits!**  
 Since it creation 6 years ago the Sandwatch website passed its twelve thousandth viewing as of Dec 2009...and it seems to be picking up speed as more and more people become aware of the programme. We are making a difference!





## Sandwatch activities on Kiribati



Sandwatchers on Tarawa with their new measuring equipment

**The Kiribati Sandwatch Committee has been working hard with several secondary schools in South Tarawa to coordinate and trial Sandwatch activities in the schools.** The Committee meets every 1-2 months and is supported by the Environmentally Sustainable Aggregates for Tarawa (ESAT) project and the Curriculum Resources Development Centre. The Committee decided to start Sandwatch in the 2011 school year. The participating schools selected one or two of the activities from the Sandwatch Manual for their students to start Sandwatch. The following described the results from the Moroni High School. The Moroni High School in South Tarawa has established a Sandwatch group called the "Climate Warriors at Moroni Beach". Thirty-five students have signed up to be part of this group. They started work at Tabuaroae Beach this year. They wrote stories and poems about the beach and climate change.

A poem written by Mwakei starts out "Why Why":

*Why the sea level rise?  
Because of human activities  
Why the heats increase?  
Because of human activities  
So; stop and think  
Prevent defrosting  
And burning of CFCs  
So; start planting  
And cultivating  
And united to  
Stop climate change*



Students received copies of the new Sandwatch manual

Their Science teacher, Emily, and their Geography teacher, Tiritaake, helped the Form 6 students work through three of the activities in different chapters of the Sandwatch Manual: Observing and Recording (Chapter 4), Measuring Erosion (Chapter 5), and Measuring Beach Debris (Chapter 8). The students divided into two different groups and started by observing and recording the different features on the beach. They drew sketch maps and observed lots of different types on debris on the beach. Their observations showed that the beach was used as a dumping site for the community and it was also used as a dumping site by people just walking by. They sorted the different types of debris and found tins, broken CDs, brushes, paper spoons, wires, plastics, bottles, leaves and beer bottles. They went one step further than measuring and recording, and the cleaned the beach, restoring it to its white sand state. They also took "before" and "after" photos. They also measured the width of the beach and observed cases of erosion in front of a seawall. They also took photos of the erosion.

**By Titeem Auatabu, Ministry of Fisheries and Marine Resources Development and ESAT Project**



## Sandwatch starts in Qatar

### Greeting to all Sandwatchers

AL Forqan Educational Complex was established in the year 1987 and the educational complex provide educational services from grade 1 to grade 12. Besides providing educational academic services, the complex hasn't neglected the extra curriculum activities. We have allocated separate time for students to enrich and explore their talents. The complex seeks to energize, mobilize and inspire mutual understanding, global cooperation, leadership and civic responsibility among the students."

I have read the articles and newsletters at the Sandwatch site, these were a great source of information and ideas and I have some ideas concerning starting the project at my schools.

I will facilitate and coordinate the work between them and the school's administration. So I would like to:

1. Hold introductory meetings with the teachers who will lead the team to shed light on the project and its activities.
2. Hold a meeting with the school's administration to inform them of the project
3. Ask the teachers to select their team members and send letters from the school notifying the students' parents of their choice and ask their approval.
4. Brainstorming sessions will be held with the teachers and students selected to come up with action plans.
5. Link the activities to the curriculum taught at school.

These steps will take place during this school year. We are looking forward to working with all the Sandwatch network members. **Mr. Yasser Hussein Omar, Teacher of English, ICT Trainer, iEARN Team facilitator. Doha, Qatar.**



All the AL Forqan Education Complex in Qatar is the latest team to join to Sandwatch



## Cape Verde holds Sandwatch workshops and more...



Cape Verde recently held a Sandwatch training workshop for local teachers and students

**The Cape Verde National Commission for UNESCO is currently coordinating and developing Sandwatch activities for the 2011/2012 school year.**

Key issues being addressed are:

- 1) Raising awareness and training schools located in cities close to coastal areas, to protect the beaches, including cleaning debris and waste left by floods in the rainy season (August / November), an analysis of the quality of sea water, and assessing the amount and rate of erosion of the beaches. Mrs. Maria José Pires of the SEA Pedro Gomes School is our Sandwatch Coordinator and trainer and has already started to conduct workshops for students.
- 2) With the support of the Network for Environmental Education (Ministry of Education and Sport) workshops in schools will be held for the protection of beaches so as to transmit to the young a sense of responsibility both here and for the world.
- 3) With support from the Ministry of Environment to train students near the beaches on the east coast of the island of Santiago to understand the negative impacts of sand extraction at some of the beaches, both on the beaches themselves and on land close to agriculture (the phenomenon of salinization of cassava, bananas, etc.). Also information about the negative impact it has on the reefs, fish and marine flora in these areas and its influence on climate change (Thalassa magazine has a TV program called "Women of Sand thieves" that answered all these questions extremely well)
- 4) A 12 part audio-visual program called "Education for the Environment" each 15 to 20 minutes long, funded by UNESCO with a component that will include Sandwatch teams working on the beaches with filming soon to begin.

The project will be coordinated by Cape Verde NATCOM, the Cape Verde Television Station-TCV and the scientific collaboration of the Directorate General for Environment along with participation of teachers and students from two UNESCO Associated Schools.

**Glória Ribeiro, Cape Verde National Commission for UNESCO**



Sandwatchers in Cape Verde learn how to test sea water for organic contaminants



## Sandwatchers on Carriacou: Stop stealing our sand

The 13-square mile Island of Carriacou is continuously dealing with the repercussions of sand mining. Even though there are signs around the island stating, "SANDMINING IS AGAINST THE LAW," sand mining is a real problem. Our Sandwatchers in Harvey Vale, Carriacou decided this summer to make a small difference by using their Sandwatch training to educate the communities about the importance of sand and directly getting involved by writing letters to the construction companies explaining why taking sand is a disaster for the future of Carriacou.

The start of the new school year is coming and Sandwatch will be a fundamental tool for the Harvey Vale environmental club that meets once a week. Through Sandwatch we not only take statistical data of Carriacou's beaches, but also educating the entire population on critical issues such as of the importance of the sand and how it is threatened everyday by humans. Sandwatch is a great hands-on program that addresses a variety of skills for youth. Up to date, there are 4 schools in Carriacou and 6 schools in Grenada that are actively putting Sandwatch into practice.

**By Crystal Marie Bernal, U.S. Peace Corps Volunteer, Grenada Coordinator**



## Sandwatch restarts in Mayotte



Small islands like Carriacou are particularly at risk from illegal sand mining

Veteran Sandwatcher, Pascale Gabriel has just returned to a new teaching position in Mayotte, in the Indian Ocean, north of Madagascar. Pascale and her students at Kougou College joined Sandwatch in 2007 and were extremely active for several years and had many successes. Then Pascale and her family returned to France and she started a new Sandwatch chapter with her students in Marseilles for 2 years, but now she and her husband, Jean have returned to a new teaching position at **Collège M'gombani in Mamoudzou, Mayotte**. She reports that she has big plans to start up Sandwatch with her new students and community using all the knowledge she has gained over the years working with us. In addition to her work in Mayotte and France, Pascale also helped to translate the French edition of the new Sandwatch manual and served as translator during the West African "train-the-trainers" workshop in Cape Verde, in August 2009.

We are looking forward to see what she can accomplish at her new position. Bon Chance Pascale!



## Sandwatch database update

Do you know about the Sandwatch database? The program is at a very exciting time in its history. Since being introduced in 2001, Sandwatch has grown to include more than 50 member countries with over 300 schools and community groups actively monitoring changes in their beach environments.

As the program has grown, new Sandwatch tools have been developed including a website, regular Sandwatch newsletters and e-news updates. While Sandwatch was started with just a manual written in English, it now has Spanish, French and Portuguese versions.

Perhaps one of the newest and most exciting tools is the Sandwatch database, projected to launch early 2012. The database will provide Sandwatch groups the opportunity to upload their monitoring data to a secure site via the Internet. Not only will this allow for proper archiving of environmental data, but it will also allow users to analyze their results and create their own charts and graphs and communicate their findings visually with the wider community.

About a year ago I had the privilege of beginning work with the Sandwatch Foundation to research and develop a plan to introduce the database once it was ready. This project was a part of my studies as a graduate student at the Florida Institute of Technology in Melbourne, Florida USA. Over the course of a year I interviewed members of the Sandwatch Foundation, and with their permission submitted surveys to some Sandwatch members seeking their feedback about Sandwatch.

The results of my research were very informative and have helped the Sandwatch Foundation to better understand all the different groups who participate in the program. The feedback I received from 14 different Sandwatch groups helped understand how some of you felt about the program in general, the Sandwatch Manual, and the introduction of an online database.

## Sandwatch in Seychelles

The Ministry of Education of Seychelles has started a project to harvest rain water from schools roofs as a means to adapt to climate change. The project which was first piloted at Belonie School in 2008 has now been expended in 10 Schools. Under the theme ‘Demonstrating Adaptation to Climate Change in Schools – Water Harvesting’, the project has been a very successful one, especially during the dry season. It has also helped in cutting down the cost of water bills in the participating schools. It has gained so much popularity that it is now being on great demand by the communities, evidence which shows how schools can help sensitise communities on environmental issues and good practices. The project has four main objectives: to harvest rain water to meet the needs of selected schools and to try reduce the cost of their water bills; to educate school children on the impact of climate change and water resources and methods used for adaptation; to raise awareness among general public on climate change impact on Seychelles, and rain harvesting as a means of adaptation to water problems due to climate change; and to share the school experience on water harvesting with the other organisations. At present 10 Schools are involved in the project, eight fully sponsored by the UNEP CC DARE project. On two other inner islands schools the project is being co-funded by the Seychelles Islands Foundation (SIF). **By Jeanette Larue, Sandwatch Coordinator, The Seychelles National Commission for UNESCO**



Some groups who responded have only had their Sandwatch program running for six months, while others have been operating for over six years. While some of the difficulties of running Sandwatch were echoed from all groups such as funding and keeping students engaged, the benefits seemed to outweigh the difficulties. One of the main benefits was the opportunity to create meaningful impacts in their communities. Getting people excited about conducting a beach cleanup, helping them understand how coastal ecosystems work and showing them that they can make a difference was a feeling shared by many respondents.

The feedback received about the Sandwatch Manual was very useful. 92% of the survey respondents said that overall, they found the manual to be useful. 94% of the respondents indicated that information was easy to find in the manual. Understanding how people use the manual was helpful information for my project and also for the Sandwatch Foundation. Knowing how your audience will be using the information allows the author to create a user friendly product. In addition to this information some of the additional comments received indicated some improvements could be made to the manual. One such suggestion described including master activity sheets in the appendix of the manual, then teachers could use these to share with their students. Another suggestion recommended including more beach monitoring activities for students.

After understanding how some Sandwatch groups became involved with the program their use of its tools I was able to develop a plan the Sandwatch Foundation could use to introduce the database to the Sandwatch community. I have many people to thank for their time and input to this project. And I can certainly say I am as excited as many of you are to see the Sandwatch database when it is ready! **Michelle Verkooy, Florida Institute of Technology**



Michelle Verkooy studied Sandwatch as part of her Masters thesis



A preliminary copy of the Sandwatch database is being tested before a general release early in 2012



Jeanette Larue stands by one of the rainwater collectors installed at a local school.

# Sandwatchers around the world!

Sandwatch is a truly global project with schools in more than 50 countries participating



This photo from the Sandwatch Indian Ocean Workshop last October, was used as a chapter cover for UNESCO 2010 Year in Review



The Sandwatch Team of Carriacou, Grenada



Our partners at WWF Belize remove sea turtle eggs for safer hatching elsewhere



Students at Hope Town in the Bahamas point to the fishing net that helped hold the dune in place during Hurricane Irene, August 2011

**"The Flagship UNESCO Sandwatch Project is an excellent example of what can be achieved...Sandwatch provides a framework for school children and local communities to work together to critically evaluate the problems facing their beach environments and develop sustainable management solutions. Since its launch in the Caribbean in 2001 which I myself attended, while visiting several islands of the region, Sandwatch has expanded to the Pacific and Indian Oceans, and is now active in around forty nations worldwide, including about 20 SIDS (Small Island Developing States)"**  
- Excerpt from The Opening Address by Mr Koïchiro Matsuura, Director-General of UNESCO, on the occasion of the International Seminar on Climate Change Education - UNESCO, 27 July 2009, Paris.



Sandwatchers from the Ernesto Guevara IPVCE school in Cuba clean their beach



Sandwatchers in Kiribati enjoy their monthly trip to measure the beach



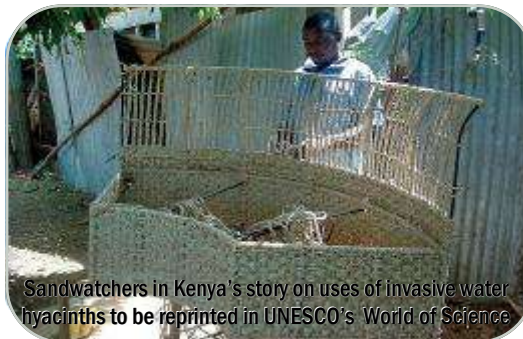
Tuvalu is another Pacific island country that has recently expressed interest in getting involved in Sandwatch



Arial photos of the Maldives show just how vulnerable there are to erosion



Sandwatchers in Cape Verde doing water testing



Sandwatchers in Kenya's story on uses of invasive water hyacinths to be reprinted in UNESCO's World of Science



Educators from around the Cape Verde Islands attend a Sandwatch Training Workshop