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PROMOTING GRASSROOTS CONSERVATION OF BEACH ENVIRONMENTS

MINISTRY OF FOREIGN AFFAIRS OF DENMARK



Black River Foundation



United Nations Educational, Scientific and Cultural Organization

## Kiribati Begins Sandwatch

By Gillian Cambers



Inside this issue Sandwatch activities in 12 countries worldwide are featured!

Including Bahamas, Bonaire, British Virgin Islands, Grenada, Kenya, Kiribati, Puerto Rico, Samoa, Seychelles, Trinidad & Tobago, Wales, Qatar... and much, much more!

*In September 2010 the Sandwatch Foundation joined together with the Environmentally Safe Aggregates Tarawa (ESAT) Project to launch Sandwatch in Kiribati.*

The ESAT project aims to combat coastal erosion on the densely populated atoll, Tarawa, and provide an alternative supply of building material through environmentally safe lagoon dredging. Other key players in the launch of Sandwatch were the **Curriculum Development Resource Centre of the Ministry of Education, Ministry of Fisheries and Marine Resource Development and the UNESCO Cluster Office for the Pacific States.**

A 3-day workshop, 15-17 September 2010, was held in Kiribati. Twenty six participants, mainly junior secondary and high school teachers, who were also joined by representatives of the Curriculum Development Resource Centre and the Ministry of Fisheries and Marine Resource Development, learnt about Sandwatch and tried out the different Sandwatch methods at a nearby beach. During the course of their work they identified four main issues impacting the beaches: *poor sanitation practices, beach erosion, sand mining and poor garbage disposal.*

The Sandwatch workshop was particularly timely since a review of the school curriculum is planned in Kiribati in 2011 so the potential

exists to integrate aspects of Sandwatch into the curriculum in the future. Workshop discussions included ways in which Sandwatch is a practical example of **Education for Sustainable Development (ESD)** and how Sandwatch helps build healthy beaches which are more resilient to **climate change impacts.**

On the final day of the workshop, participants worked in different groups: geography teachers, social science teachers, science teachers and Curriculum Development Officers to plan future Sandwatch actions. Proposals included establishing a Sandwatch Coordinating Committee, identifying areas where Sandwatch could be incorporated into the school curriculum, and a combined effort from science and geography teachers in some of the schools represented at the workshop to start Sandwatch activities in their schools during the first term of 2011. One of the teacher's comments during the workshop evaluation was as follows: *"Sandwatch helps in learning to identify several issues that need to be addressed concerning the beach, and raises awareness on ways this should be done, especially including it in a school syllabus as it might change the behaviour of future generations and that will surely help our beach."* Sandwatch is off to a sound start.





## Inside this issue...



Teachers and community leaders in Grenada attended a National Sandwatch Workshop. Here they are learning how to measure longshore currents using a dye marker

Welcome to the tenth (10th) Edition of **The Sandwatcher**, the Official Voice of **The Sandwatch Foundation**. This issue focuses on expansion of Sandwatch into the Indian and Pacific Oceans regions, together with numerous articles, photos and items of interest from Sandwatch teams worldwide as well as contributions from several colleagues and partners.

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

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

- Reports on **Sandwatch Workshops** held on **Tarawa, Kiribati, and Samoa**, both in the **South Pacific**
- Details on the up coming **Sandwatch Regional Indian Ocean Workshop** to be held in **Mahe, Seychelles**
- **Sandwatch** expands in Puerto Rico
- A **Sandwatch National Workshop** was held in **Grenada, Caribbean** in April, 2010
- Plans to expand **Sandwatch** into **Qatar**, in the **Persian Gulf** area
- **Sandwatch Kenya** presents puppet shows to highlight oil pollution of **Lake Victoria**.
- **Sandwatch** plans a joint workshop with **UNESCO Jamaica** to be held in **British Virgin Islands**
- **Sandwatch** featured in new **UNESCO 'SIDS Success Stories'** publication.
- **Sandwatch** expands into new schools in **Bonaire and Fiji**

Plus amazing updates, stories and photos from Sandwatch teams from 20 countries worldwide!

## Grenada hosts national Sandwatch Workshop



Grenada's beautiful Grand Anse Beach hosted the field training portion of the workshop

Following a request from Mr. Eugene Gittens, **Secretary General of the Grenada National Commission for UNESCO** and the **Grenada Ministry of Education** to host a Sandwatch 'Train-the-Trainers' workshop, the Sandwatch Foundation with the support of UNESCO were able to quickly arrange and mount a very successful two (2) day training session, April 14 to 15, 2010.

Though the request from Grenada was submitted in mid-March, 2010 all parties involved were able to coordinate their efforts in record time and organize an extremely productive workshop that served to launch a pilot project for the planned integration of Sandwatch into the National Curriculum for all schools primary and secondary within the country for the school year commencing

September 2010. The Sandwatch pilot project has been built around the training of staff from twelve (12) primary schools and four (4) secondary schools as well as several community volunteers.

We were also pleased to see that a very eager participant from Grenada's small 'sister island' of **Carriacou** participated in the workshop.

With funding and support from **UNESCO**, Sandwatch Foundation Director, Paul Diamond travelled to Grenada and facilitated the workshop, which consisted of a day of classroom training with background information on the program and was held at the Ministry of Education offices. The first day's presentation was given to approximately thirty Ministry of Education staff, school principals, teachers and community volunteers, including staff from St. Georges College and the Peace Corps. The second day was a day of field training at the beautiful **Grand Anse Beach**. Participants were also provided with basic Sandwatch equipment kits to take back to their schools to assist in starting the project. Several video interviews with participants can also be viewed online at **The Sandwatch Foundation's YouTube channel** at [www.youtube.com/user/SandwatchFoundation](http://www.youtube.com/user/SandwatchFoundation)



Almost 30 educators and community leaders attended the two day Sandwatch National Workshop in Grenada, with the aim of making Sandwatch part of the new National School Curriculum



Educators from 12 schools and several community groups and NGOs attended the Grenada workshop

## Using puppets to stop 'oil spills' in Lake Victoria



Fishing boats sit idle as fish stocks disappear due to pollution and other stressors

Ladies and gentlemen, we in **East Africa** are experiencing a form of oil spill. It is much smaller than the currently talked about oil spill in the Gulf of Mexico. The oil spill that we are experiencing here is even deadlier and its repercussions are reverberating in the entire Sub African continent. The oil spill is being caused by washing of oily, dirty trucks, tankers, buses, cars and motor cycles in Lake Victoria.

Lake Victoria is a massive fresh water lake in East Africa. It is not only the source of the **River Nile**, but also the source of livelihoods to millions of families in **Kenya, Uganda, Tanzania, Sudan and Egypt**. On any typical day on the beach area around **Kisumu**

**City**, you will find big trucks and oil tankers parked right in the lake being cleaned and washed. The people who do this take advantage of the free clean and fresh waters of the lake to conduct this heinous act oblivious to the dangers they pose to the consumers of the water and



Washing vehicles and flushing out cement mixers, oil tankers and even chemical transporters is an all too common sight on the shores of Lake Victoria

marine life. Interestingly those taking part in this are the very beneficiaries of the lake who just want to make quick money. During the summer holidays in the month of July and August 2010, the Kenya chapter of **Sandwatch** constructed two (2) huge puppets which they used to tell the story of the lake and how human activities are slowly but surely killing it. The

puppets are a success story, because ten of thousands of Kisumu residents followed us on the streets and around the lake beaches to listen to the story of Lwanda Magere the puppet, which was written and directed by the Patron of Sandwatch Kenya Chapter, Mr. Peter Amunga. We intend to continue with this as it is a proven fact, that people in Africa love, drama,

music, art and story telling as a method of entertainment and also a means of passing on values and principles. **By Mr. Peter Amunga, Sandwatch Coordinator, Kisumu, Kenya**



Sandwatchers perform drama and skits on the beach to tell a story of environmental conservation

## Seychelles: Regional SW workshop for Indian Ocean



### Indian Ocean Regional Sandwatch Workshop to be held in Seychelles 4-8 October 2010.

In 2009 the Sandwatch approach was expanded to include climate change resilience building, with the support of the **Government of Denmark, UNESCO and the Sandwatch Foundation**. The Sandwatch manual was revised and trialed at a Sandwatch workshop in The Bahamas in June 2009. The manual has now been published and will be launched at an **Indian Ocean Regional Workshop** to be held in Seychelles 4-8 October 2010. The workshop will bring together several new and experienced Sandwatch practitioners. In addition, work has progressed on developing a Sandwatch database that will provide a scientific tool and record of the beach monitoring activities being conducted by Sandwatch groups worldwide. The prototype database will be presented and discussed at the workshop.

**The Indian Ocean Regional Sandwatch Workshop is being held in Seychelles with the support of UNESCO and the Seychelles Ministry of Education, Employment and Human Resource Development. The objectives of the workshop are:**

1. To launch Sandwatch in the Indian Ocean region, especially in Comoros, Rodrigues, Mauritius and Maldives
2. To re-energize Sandwatch in Seychelles and enhance the skills of existing Sandwatch practitioners in Seychelles
3. To form a group of Sandwatch trainers, skilled in the revised Sandwatch approach that incorporates climate change adaptation and resilience building, and equipped to spread the revised approach nationally in the Caribbean and Pacific regions
4. To trial the prototype Sandwatch database

Representatives from the **Comoros, Maldives, Mauritius, Seychelles, Fiji, Cook Islands and The Dominican Republic** will be present at the workshop as well as experts and guest speakers from **Canada, Australia, France and St. Kitts & Nevis**



Sandwatchers use puppets to stage plays telling how washing vehicles in the lake is killing it



## Schools with vision: Sandwatch expands into Grenada



The new Sandwatchers of St. David's Catholic School, Grenada, conduct their first beach monitoring trip

*The following is the full length story as it appeared in the July 30<sup>th</sup> edition of the GRENADA INFORMER and the August 2010 Issue of the BARNACLE. The article was prepared by Ms. Wendy Chasteau of the Public Relations Unit of the Ministry of Education, Grenada.*

Armed with measuring tapes, microscopes, gloves, trash bags, measuring sticks, water testing kits and motivation, students from schools around Grenada are mobilizing for a common cause, beach management. There is little question that Grenada has some of the most beautiful beaches and landscapes in the Caribbean. Regretfully, some of these beautiful places like Sandy Island are now being marred by scattered heaps of trash and sand erosion. Grenada can't be subjected to such obliviousness, and schools around the island are trying to make their environmental voice be heard.

Determined not to stand idle, students from **St. David's Catholic School**, led by **Ms. Meryl Mahon and Mr. Kwame Hypolite**, descended on **La Sagesse Beach** last week to make a difference for their community. There are 12 schools that have been chosen to participate in an environmental 'pilot project' called **Sandwatch** through the Ministry of Education. **The Grenada National Commission for UNESCO** (United Nations Educational, Scientific, and Culture Organization) is sponsoring this project. Sandwatch provides the framework for children, youth and adults, with the help of teachers and local communities, to work together to critically evaluate the problems and conflicts facing beach environments and to develop sustainable approaches to address these issues, while at the same time helping beaches become more resilient to climate change. Climate

change and development has taken its toll on some of the beautiful beaches in Grenada, through Sandwatch the schools can monitor beach erosion, water contamination, and beach debris. By the end of the day, thanks to the hard work of all the students, bags full of plastic bottles, oil containers, abandoned fishing nets, and miscellaneous trash had been collected. The students took measurements of the current vegetation line, water quality, longshore currents, and beach waves. The work is to be continued as this St. David's class plans to be at the La Sagesse beach at least once a month to monitor and document the change and developments at the beach. St. David's Catholic School has taken the lead through their interest and eagerness for the environment and the program which was formally launched in Grenada on April 14<sup>th</sup> 2010. Ms. Meryl Mahon a geography teacher and a social studies teacher Mr. Kwame Hypolite have paved the way to educate their students about the importance of a healthy environment. Students, Hessley Paul, Quacee Alexander, Mathew Hazzard, Sabrina Thomas, Arnold Felix, Linda Bishop, Delon Joseph, Keith Regis, Deron Hazzard, Davidson Alridge, Sheldon Brathwaite, Seandell Alexander, Romel Felix and Amilcal Lewis have chosen to monitor La Sagesse Beach in St. David's as part of Sandwatch. Ms. Mahon stated, "*Sandwatch is a good program for children because it aims at creating awareness of the coastal environment and it seeks to inform students about how and why they should use the marine environment wisely. As children work together they not only have fun but they assess problems of the beach environment and the project fits nicely into the curriculum which is closely linked to the areas of mathematics, science and general studies.*"



Measuring wave heights on La Sagesse Beach isn't as easy as it sounds if the wind is blowing



Sandwatch group at Utulae-lae village, Samoa

## 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!



## Many beach activities with Sandwatch Trinidad



The **Mayaro Environmental Wave Organisation** is calling for greater governmental involvement in cleaning up loads of garbage on the beach. Andy Paul, head of the seven-year-old organisation and the **National Sandwatch Coordinator for Trinidad and Tobago** has integrated **World Environment Day** celebrations as a major component of the Sandwatch Programme. On June 6th 2010, the Mayaro Environmental Wave, in collaboration with the **Trinidad and Tobago National Commission for UNESCO** hosted the annual event "**SandSplash 2010**" at the Church Road Beach, Mayaro. Seventeen groups from all over the lovely island came together to celebrate World Environment Day, including for the first time, two schools from Tobago and the environmental students from the University of Trinidad and Tobago. Approximately two miles of the beach were cleaned. All garbage was weighed and sorted according to plastics, glass, metal, styrofoam and other. Shari Ablack, co-ordinator of the UNESCO group at Naparima College, said the youths in her charge were very much appalled to see so much garbage on the beach. She continued by saying that "the exercise was beneficial to the young people who were very much upset when they encountered a high level of discarded diapers, broken rum and beer bottles and plastic soft-drink bottles on the beach." The organisers of the event have noted that there was a greater need for the relevant authorities to sensitize the public to either use the limited garbage bins on the beach, or take their garbage with them. The youths also engaged in a tree-planting exercise, a march throughout the community, and a sand sculpting exercise. Fifty plants were planted as we pledged to do our part in the fight against climate change. It is time to stop talking and start planting. *(Special thanks to the Trinidad Guardian reporter Shastri Boodan for contributing to this report)*



The Mayaro Sandwatchers of Trinidad are one of our most active groups and do a host of activities

## Bahamian Sandwatchers win District Science Fair



**Hope Town Primary School "Sandwatch" Team** has worked for many years on their test site patch reef in front of their school. This last year they worked on water quality in the water surrounding the reef and in our famous harbour that is very popular with winter boaters. The Bahamas does not have a "no dump" law for toilets on live-aboard sailboats and yachts so our once pristine harbour is awash with bright green algae indicative of e-coli and high nutrients in the water. Tufts University visited Hope Town several times last year to do water studies. They were interested in all the studies and water testing our students had done and met with them for discussion about healthy water -- healthy communities.

Our local environmental group "**Friends of the Environment**" is concerned about healthy waters and took it a step further to study water and the sustainability of the Bahamas number1 seafood export--the Spiny Lobster. They designated the yearly Abaco School Science fair "**Size Matters in Spiny Lobster**". They wanted to get the word out that waters must be clear and undersized lobster must not be harvested if we expect this commercial crop to be sustainable for generations to come.

We Sandwatchers got busy right away to work on our strategy. We are convinced that lobster must always be available for a meal and for viewing on our reefs ! We interviewed some older men from our community to see how the catching of lobster had changed over the years and if they thought the species was in danger. Next we designed a trap method that would allow smaller crawfish to escape while keeping larger ones contained. When we showed that trapping method to the elder fishermen they liked the idea. The students made clay lobsters, junkanoo ( brightly coloured festival) lobsters and made a puppet theatre complete with a turtle, conch and lobster that told about their plight. Thankfully the Bahamas Government just passed a law protecting all species of sea turtles but our conch population is dwindling because of the same problem as lobsters--harvesting undersized species. Our Grade 6 students devised a plan to license people wishing to harvest lobster after they had passed a study course and a test. They interviewed community members to see what they thought about a licensing course. Most people thought an educated fisherman would be a more cautious one. The judges all came around to see our displays and interview our students about their topics and activities. They came back again! When the winners were announced we were thrilled to hear that we had won **BOTH the Lower Primary Division and the Upper Primary Division!!!** The prizes were Laptop computers. "Spike" the mascot lobster came to our school to present the computers. What an exciting time we had!

**The Sandwatchers of Hope Town Primary School, Abaco, The Bahamas**



Replanting trees and shrubs helps to save Trinidad's sand dunes and beaches!



The Hope Town Primary School students show off the prizes they won in their district science fair!



## 'Sandwatch on da move' in Kiribati

From 15-17th September 2010, teachers in Kiribati learnt about Sandwatch, see front page article. Here is one of the articles they prepared during the workshop.

### **Living to care for our environment is to make our beach a healthy one**

Beach how wonderful you are without being disturbed

You are Mother Nature's gift

You protect our land from being eroded.

You create a wonderful ecosystem for every living creature on our land.

You're so fruitful to the whole society.

Oh BEACH! How sad am I to look at you as your beauty fades by the work of human beings

You've been polluted; you've become the home for solid wastes, human wastes.

You are eroded as a result of human development

How terrible you are for you are no longer wonderful and beautiful

You look like someone I never knew

But do not worry Oh BEACH!

For Sandwatchers are on the move

They come with new ideas to bring you back your beauty

For Sandwatchers are a community, they are soldiers, ready to stand for you

Applaud the Sandwatchers, Bravo to the Sandwatchers!



Sandwatch teachers in Kiribati presenting some of their creative work.



## Sandwatch (Guardarenas) expands in Puerto Rico

**Education is one of the priorities at the University of Puerto Rico Sea Grant College Program (UPRSGCP).** That is why we implemented **Sandwatch** in Puerto Rico. Nowadays, we have ten groups working on Sandwatch. Most of the groups are composed of teenagers and their science teachers or community leaders. They are taking measurements and learning about Puerto Rican beaches, their present condition, composition, waves, currents and organisms, and anthropogenic effects on beaches. After taking and analyzing the measurements, the groups put the results in the blog: <http://seagrantpr.org/guardarenas>.

UPRSGCP, in partnership with the **Caribbean Regional Association (CaRA)**, provides training, tools, and support to the groups that are already working with Sandwatch. Dr. Delmis Alicea Segarra, communications assistant at UPRSGCP, Lesbia Montero, education coordinator of UPRSGCP, and UPRSGCP educators are helping groups to do their best during the workshops and the field trips. Also, they keep track of the visits that the groups do to the beach. **About 75 teachers and community leaders have participated in the workshops.** During the workshops, attendees obtain basic information about the origin and the objectives of Sandwatch, learn the appropriate ways to obtain the measurements with their groups, and practice the activities contained in the handbook. Now, we are trying to reach more schools and communities in order to extend the Program in the country. We are telling people about Sandwatch through radio and TV programs (see <http://www.youtube.com/watch?v=MQxezXm2vFs>), and also, promoting it at fairs, school visits, and meetings. Due to our blog, other people from different parts of the world know about Sandwatch. Recently, a group from **Mexico** found our blog and showed an interest in Sandwatch. We will be supporting them in the process of developing and implementing the project in their country. In addition to the workshops that we develop for the Sandwatchers, we are working on a series of instructional videos. The purpose of these videos is to demonstrate the correct way to do the activities, clarify doubts among participants and provide education at a distance. Soon, people will find the videos in the blog and in UPRSGCP's youtube channel: <http://www.youtube.com/user/programaseagrantpr>.

**By Cristina D. Olán Martínez, UPRSGCP Communications Coordinator**



About 75 teachers and educators have attend Sandwatch training workshops in Puerto Rico so far



Sandwatch trainees learn all about our methods and techniques including examining the types of sand that make up their local beaches

## Sandwatch to begin in Qatar



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.

My educational organization consists of three schools: Primary, Preparatory and Secondary. I am not going to be the coach for the three schools but other teachers will lead and 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.



Sandwatch looks forward to assisting with getting the programme established in Qatar and the rest of the Gulf States

## Sandwatch begins design of online database



Hello. I would like to introduce myself to the **Sandwatch community**. I am Dave Gray and live near **Halifax, Nova Scotia, Canada**. Some years ago I worked with Gillian Cambers to create the Beach Profile Analysis software used with her methodology for monitoring accretion and erosion on beaches. I am now working on database software for Sandwatch.

**The Sandwatch Database** will provide a central repository for the data collected by Sandwatch Groups. The Database will provide secure storage for the data. It will make the information collected available to a wider audience and will allow for comparisons of data trends for beaches in different geographical areas. This will provide a unique source of information for monitoring how climate change is affecting beaches around the world.

*Members of Sandwatch Groups will access the Database over the Internet through a web browser.* The user software will use the Adobe Flash Player that can be freely downloaded and is probably being used by many of you already for viewing other Internet sites. This allows us to provide you with software that will function with any current browser and computer and have features that will be responsive and easy to use.

The Database is being designed to hold all the information you collect for your beach. As well as storing basic descriptive information on your group and your beach you will be able to upload and store pictures, beach profiles, weather data, and water quality data. The software will include access to Google Maps. You will be able to store the coordinates for your beach but a viewer will be able to move around the area as with any other Google Maps application.



Coming Soon: The new Sandwatch online database will allow teams to easily record and track their measurements over time

## Sandwatch featured in "SIDS Success Stories"

**Sandwatch has once again been featured in an international publication, this one highlights success stories in Sustainable Development in Small Island Developing States worldwide.**

The article features our methodologies and the various strategies Sandwatch Teams have employed to monitor and protect their fragile coastal environments.

Jointly prepared by the **SIDS Unit** and the **UNDP Special Unit for South-South Cooperation**, the "**SIDS-SIDS Success Stories**" publication aims to highlight significant achievements that have been made in advancing sustainable development in SIDS through collaboration among SIDS in the broader context of South-South cooperation. The results highlighted in the Success Stories demonstrate that important steps forward have been achieved to promote sustainable development in SIDS through the collective commitment and dedication of many different stakeholders.



Sandwatch is featured as a success story in another International Publication!



## Beautiful Invaders: Lion Fish in Bonaire



A baby lionfish just a few inches long caught off Bonaire. Just one of many

**From Florida to the Bahamas to the USA and British Virgin Islands the invasive Lion Fish is slowly making it way through the Caribbean. Oddly it has already established itself far to the south in Bonaire and nearby islands off the coast of Venezuela. Many island nations are now trying to eliminate these pests before they irrevocably destroy native reef fish species**

### Beautiful Invaders

I expected to feel the urge to remove the disgusting invader from the coral head immediately as soon as I saw it. Instead, I was awestruck. I remained in place and watched it for a few minutes. It was a breathtakingly beautiful fish. Mesmerizing. I gazed at its feathery fins delicately waving underwater as the fish swam slowly around the sand under the coral head.

Although beautiful creatures, they are a formidable invasive species in the Caribbean, with voracious appetites, capable of eating large numbers of small reef fish and crustaceans per day. Looking around and seeing all the tiny fish nearby snapped me out of my blissful day-dream and back into reality. I had to capture this alien invader before it ate them all.

Native to the Indian and Pacific Oceans, the lionfish, both *Pterios volitans* and *Pterois miles*, have been documented, beginning in 1992, from the Western Atlantic, as far north as Rhode Island, to the lower Caribbean Sea, and as far southwest as the Netherlands Antilles. In addition to a voracious appetite, lionfish in the Caribbean have no natural predators, are capable of reproducing year-round, are parasite resistant, have poisonous spines and compete with native fishes for territory and food. (<http://www.reef.org/programs/exotic/lionfish>) **The first reported sighting in Bonaire, N.A. was in October of 2009 and they have spread fast.**

The Bonaire Marine Park was quick to respond, implementing their action plan to remove lionfish, and offering lionfish collection training sessions to a limited number of volunteers by January. These trained volunteers carry tags identifying them as members of the "STINAPA National Park Authority Lionfish Removal Team."

The marine park has had a ban on any kind of spearfishing since 1971, so the method of capture consists of large plastic sided box nets and another long-handled tool (flyswatter or noodle strainer) to encourage the fish to swim into the net. ([STINAPA http://www.bmp.org/lionfish.html](http://www.bmp.org/lionfish.html))



The CIEE Lab on Bonaire encourages local students to not only assist in capturing lionfish but also to help with their dissection to determine what local species of fish they prefer to eat

Lionfish markers, survey tape attached to a wine cork, are given to all divers and are available in all dive shops. Divers are encouraged to mark observed lionfish with the markers by tying the free end of the survey tape to a non-living piece of reef near the lionfish, so the cork will float and be visible to removal experts. Sightings are reported to the Marine Park and logged on a spreadsheet. Removal team members log in and mark a particular fish they will retrieve. All reported lionfish are collected;

however recreational dive limits do not allow the collection of fish living beyond 120 feet. Collected fish are frozen by the removal team members and taken to the local **CIEE laboratory** for further study. Stomach content analysis, vital statistics, depth and location are all noted. Local fishermen were included in a July 2010 community meeting and trained on how to handle the poisonous spines when they encounter lionfish. They were also given a few recently caught fish to take home to cook.

As of August 21, 2010, there were 393 lionfish captures that were documented and processed in the CIEE laboratory. (Ali 2010) The work to remove lionfish by Marine Park representatives, researchers and volunteers is a continuous process, consisting of daily postings of sightings and daily collections by volunteer divers

**By Cinde Wirth, Biological & Archaeological Resources Consultant, Bonaire, Netherland Antilles**



Lionfish have a voracious appetite for reef fish and have no local predators



Sandwatch has its own dedicated YouTube Video Channel at...

[www.youtube.com/user/SandwatchFoundation](http://www.youtube.com/user/SandwatchFoundation)

### The Sandwatch website logs over 16,000 hits!

Since its creation 4 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 starts up in Samoa



**Almost one year ago, on 29<sup>th</sup> September 2009, the islands of Samoa, Tonga and American Samoa in the southwestern Pacific Ocean were impacted by a major earthquake and tsunami.**

Extensive damage occurred and many people were killed. In Samoa, evidence of the event is still visible one year later, especially along the south coast of the island, and it is possible to see where the sea flooded the coastal areas. As people rebuild their houses and villages, the emotional scars remain as many still mourn for those who were lost.

Following this major disaster, it was timely that several different organisations came together from **27-28 August 2010 to launch Sandwatch in Samoa.** The organisations involved included **The Sandwatch Foundation, UNESCO and the United Nations Development Programme Global Environment Facility Small Grants Programme (UNDP GEF SGA).**

Working together with the **Government of Samoa's Ministry of Natural Resources and Environment and the Ministry of Education,** more than thirty (30) persons joined in the two day workshop that was held in Apia, Samoa.

The first day involved an indoor session where participants from government agencies and several communities were introduced to the Sandwatch programme and methodology.

The main points of interest emerging from the first day were:

1. Sandwatch has the potential to provide sound data and it might be the best data possible, since Government Ministries do not have the resources to monitor 300 village beaches on a regular basis. Sandwatch also raises awareness with the community.
2. Every beach is different just like people are different.
3. Sandwatch is good for everyone including youth, children, adults and communities.
4. Sandwatch needs champions.
5. Please translate the Sandwatch manual into Samoan.

On the second day of the workshop, participants were invited to the village of **Utulaelae** on the south coast of **Upolu.** Here they practised the Sandwatch methods and saw for themselves the potential of the Sandwatch programme.

Among the many post-tsunami issues facing Samoan communities is the question of how to protect their communities from future tsunamis and other high wave events such as occur during cyclones. Many

villages are asking that their communities be protected with sea walls, since they feel that they will be safer behind a solid concrete structure. Other villages are adopting a different approach by rebuilding their houses further inland and on higher land. During the two-day workshop there was a lively debate concerning the merits of seawalls and their impacts on sandy beaches. Other related issues included the mining of sand from the beaches.

Sharing information is an important part of Sandwatch, so it is anticipated that the information collected about beach changes and coastal processes will help inform this debate in Samoa. Furthermore, the Ministry of Education in Samoa is in the process of reviewing and revising its school curriculum, and it is hoped that aspects of the Sandwatch approach and activities can be included in this process.

As an outcome of the workshop it is anticipated that the village, Utulaelae, will become a pilot site for Sandwatch in Samoa, and that local schools will become involved in Sandwatch monitoring. Other villages will also be encouraged to start Sandwatch programmes.

The UNDP GEF SGP through its Community Based Assessment Programme plans to conduct a Sandwatch training, one on Upolu and one on Savaii over the next six months. The following villages would be involved. Lelepa, Fagamalo, Aofaga, Utulaelae, Fasitootai, Satalo and Tafatafa. It is planned to distribute a Sandwatch kit to each of the communities involved at these trainings.

The Sandwatch workshop was a unique opportunity to engage a diverse group of people with a common purpose for protecting Samoa's shoreline. It was a unique opportunity to engage the Ministry of Education, the Ministry of Natural Resources and Environment, 7 communities, UNDP, UNESCO and the Sandwatch Foundation.

**By Gillian Cambers  
Director, Sandwatch Foundation, and  
Kevin Petrini from United Nations Development Programme, Small Grants Programme,  
Community Based Assessment**



The New Sandwatchers of Samoa create a sketch map of the beach



Evidence of the September 29th, 2009 tsunami that hit Samoa is still clearly visible along the coast of Upolu



Measuring beach width in Samoa



[www.climatefrontlines.org](http://www.climatefrontlines.org)

## Frontlines Forum: What's it all about?

Many small islands, rural and indigenous communities are already facing the first impacts of climate change. Their high vulnerability relates to their reliance upon resource-based livelihoods and the locations and configurations of their lands and territories. Ironically, despite broad recognition that small island, Arctic, high altitude and other vulnerable communities are on the frontlines of climate change, their voices have remained largely on the sidelines of climate change debates. In response to this the grassroots Internet forum On the Frontlines of Climate Change was launched by UNESCO, in partnership with the Secretariat of the Convention on Biological Diversity (SCBD), the Secretariat of the UN Permanent Forum on Indigenous Issue (SPFII) and the Office of the High Commissioner on Human Rights (OHCHR).

To find out more about the Frontlines of Climate Change Forum, its goals and how you and your community can become involved, please visit our website [www.climatefrontlines.org](http://www.climatefrontlines.org).

We look forward to your continuing interest and active participation in the Climate Frontlines forum. We welcome questions and suggestions to improve the forum's relevance and outreach. Please send to: [peoples@climatefrontlines.org](mailto:peoples@climatefrontlines.org)



## Sandwatch teams monitor BVI beaches

On Thursday afternoon, two **Elmore Stoutt High School** students were on **Long Bay Beach at Beef Island**, taking measurements and observing the environment with biologist Dr. Lianna Jarecki. Tyrone Varlack held a drawing pad and a pencil he was using to sketch the activities that were going on around him. He stood at the shoreline, drawing the boats, the surrounding islands, the trees and a few people who swam in the sea. Andre Pereira, who carried a magnifying glass and a measuring tape, helped Dr. Jarecki take samples of the sand and the sea as the biologist made notes on a data sheet.

The trio was there as part of **Sandwatch International**, a programme that teams youths with adults to monitor beach environments around the world. Every Thursday, members of the **Youth Empowerment Project (YEP)** in East End, along with a staff member, visit a beach to take measurements.

Sandwatch was conceived during a 1998 environmental education workshop in Trinidad and Tobago, according to the United Nations Educational, Scientific and Cultural Organisation (UNESCO), which facilitates the initiative. It since has grown into an international movement that uses the Internet to connect groups in more than 50 countries around the world, including several in the Caribbean.

Here, the programme is now being facilitated locally through two separate organisations: YEP and the Jost Van Dyke Preservation Society. YEP first worked with the programme three summers ago, in collaboration with Sail Caribbean, according to Esther Rabsatt, YEP's executive assistant. Three weeks ago, the group regularised its participation and started visiting a beach every Thursday. The Tortola contingent already has collected data on several beaches, including Cane Garden Bay, Well Bay, Bluff Bay and Trellis Bay, Dr. Jarecki said. On Jost Van Dyke, the Preservation Society started monitoring beaches in summer 2008, during an event held in conjunction with the Conservation and Fisheries Department. Now participants visit a beach at least twice a month for about two-and-a-half hours, according to **JVDPS Director Susan Zaluski**.

The group also was invited to a Sandwatch International conference in Barbados, an event that was attended by a Jost Van Dyk teacher, Ms. Zaluski explained. The data collected in the BVI will be sent to the Sandwatch Centre and posted on the programme's Web site.



Sandwatch has been active on three islands in the BVI for several years



## Sandwatching tidal pools in Wales

**At Brynhyfryd Junior School our year three children Sandwatchers studied the environment of rock pools at Caswell Bay, Swansea together with learning about the environment in the oceans around the world.** The children completed a study of the rock pools around the strandline of this sandy beach observing and monitoring the variety of sea creatures in their habitat. The children were able to investigate the numerous rock pools around the bay and completed a worksheet comprising tallying the creatures found and identifying their physical features. Children were amazed with the number of starfish they saw and learnt a lot about their life pattern and habitat. They were also taught the importance of caring for the environment and the need to replace the starfish found back into the rock pool.

Back in the classroom children then investigated the sea creatures further by using the Internet and reference books. The second part of the Summer Term involved them studying the oceans using a variety of resources and the video the Blue Planet. This extended the children's knowledge and understanding of sea environments further afield from the local beaches.



The Sandwatchers of Swansea, Wales are some of our youngest participants

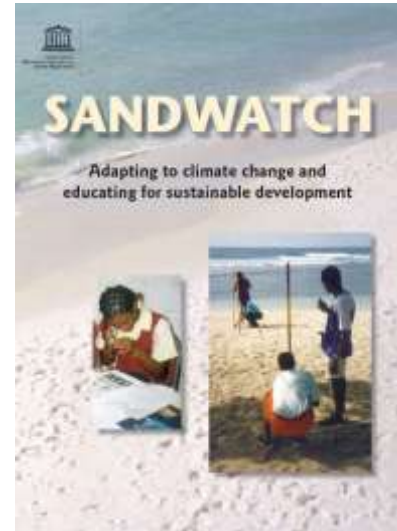
## Sandwatch equipment



Equipment kits include a 30 metre measuring tape, a clip board, a compass, a magnifying glass, a stopwatch, dye tablets and a complete water quality monitoring kit, capable of testing water samples for dissolved oxygen, biochemical oxygen demand, pH, phosphates, nitrates, turbidity, temperature, salinity and E. coli bacteria.

**While kits are useful, you can start Sandwatch with just a pencil and paper.**

The new Sandwatch Manual (top right) is available from UNESCO as of mid-October 2010.



New Sandwatch manual, 2010



Optional Sandwatch equipment: bag and digital microscope

## Seychelles Sandwatchers clean up the world



**Seychelles Sandwatchers (English River School) participated in the Clean up the world at North East Point Beach in September 2010.**

The North East Point beach is situated to the north east of Mahe Island. North East Point is a residential area as well as a recreational area. The home of the elderly and a rehabilitation centre are also found close to the beach. The beach is often used for picnics and other recreational activities.

The location has been chosen since the club has adopted the beach to carry out different **Sandwatch** activities since 2008. Furthermore, since the theme is 'communities caring for nature' we wanted to move to the community to show our concern for a cleaner beach. Some students also live in the area; we therefore wanted to instill a sense of 'caring' for their beaches and their environment. **The Sandwatchers** cleaned up a large area of the beach. Some students from the primary school and people from the community were also actively involved. The Sandwatchers' parents provided some refreshment for the students. We are grateful to the Waste Management Department at the Ministry of Environment especially, Ms Nada Francourt who provided the equipment, transportation and lunch for the Sandwatchers. The students also carried out a pollution survey at the beach. The findings showed that pollution is a major concern at the North East Point beach. Plastic bottle, plastic bags and glass bottles were the largest amount of litter found. The main source is by the picnickers. We feel that small bins are needed along the beach and more education needs to be done regarding the dangers of litter for the coastal environment. **By Ms Wendy Noel, English River Sandwatch Coordinator, Seychelles**



English River School Sandwatcher on Mahe Island cleaned up their local beach of trash and debris

# Sandwatchers around the world!

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



Trinidad Sandwatchers hold an annual beach festival "Sand Splash"



Measuring currents in Puerto Rico



The crown of thorns starfish is another environmental problem facing the reefs of Samoa



Sandwatchers in Puerto Rico get close to nature on their field trips

"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.



YEP-Sandwatch students in BVI help to inject a tracking device into a sea turtle



Sandwatch students in Kenya, pose with their environmental puppets



Sandwatchers on San Andres Island, Colombia replant vegetation on their beaches



Planting in San Andres Island, Colombia



Community members measuring beaches in Samoa



Remember Sandwatch is Fun!



23 educators from several West African countries took part in the Cape Verde, Sandwatch Workshop, Aug 2009