



Monitor  
Environment



Analyse  
Results



Share  
Findings



Take  
Action

## Inside this issue: Sandwatch activities in 21 countries worldwide

*Including, Azores, Australia, Belize, Cape Verde, Colombia, China, Cuba, Dominican Republic, Guyana, Indonesia, Kenya, Kiribati, Madeira, Mexico, Mongolia, New Zealand, Puerto Rico, Slovakia, Senegal, Trinidad & Tobago, US Virgin Islands... and much more!*

SANDWATCH  
FOUNDATION



## Sandwatch 15 years on! Where next?

The Sandwatch programme started in 2001 with a training workshop in **St. Lucia** and now we have passed the 15-year milestone.

And what a 15-years it has been! With so many Sandwatch groups all over the world using and improving the Sandwatch methodology of **Monitoring, Analysing, Sharing** information and **Taking action (M.A.S.T)** to conserve our beach and coastal environments and to use them wisely.

With so many achievements by Sandwatch groups it is difficult to single out individual successes. But here are a few ..... and they range from:

- seeing aspects of Sandwatch integrated into the school curriculum in **Cook Islands** and **Kiribati** ..... to more than 500 high school students in the **Dominican Republic** using Sandwatch for their community service activities, which are a requirement for graduation; seeing the Sandwatch methodology being applied to the understanding of climate change, especially ocean acidification in **Australia**...to the amazing Sandwatch student exchange visits between **Trinidad & Tobago, Brazil** and **UK**;
- seeing Sandwatch students in the **Bahamas** replant and conserve sand dunes after a hurricane...to Sandwatch being recognized as **one of 25 most successful Education for Sustainable Development (ESD)** initiatives from around the world in 2014 at

the end of the Decade of ESD.

- seeing the expansion of Sandwatch from a small regional Caribbean project to now being represented in more than 50 countries in all corners of the world.

This and so much more has been achieved by Sandwatch groups around the world—YOU!

So as we enter into our second 15-years of Sandwatch we want to hear from you and find out what you would like Sandwatch to achieve in the future. Over the course of 2017 we will be contacting many of you individually, by email, phone and skype, to hear your stories about the most significant changes you have seen due to Sandwatch, and how you would like Sandwatch to evolve in the years to come.

And of course a special acknowledgement to all the organisations that have supported Sandwatch in so many different ways, to **UNESCO** and the **National Commissions for UNESCO**; to the many universities, colleges and schools; to the government organisations; to the non-governmental and community groups; and to dedicated individuals.

The Sandwatch Foundation – Gillian, Paul, Dave and Michelle.





## Inside this issue...



We have our own Sandwatch Video Channel, so tune in to see our videos from teams all over the world. Go to Youtube and type in...  
**The Sandwatch Foundation**

### Welcome to the eighteenth (18th) 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 21 countries all over the world, from the Caribbean, Indian and Pacific Oceans, Africa, Asia and Australia. Thanks to all of you, Sandwatch has become a recognized global environmental project. Just some of the highlights of this issue include...

- Sandwatch's Online database training in the Dominican Republic
- Sandwatchers try "Carbon Farming" in Indonesia
- Sandwatch team doing citizen science in the US Virgin Islands
- Sandwatch integrated into the primary school curriculum in Kiribati
- Sandwatch teacher training course in Guyana
- Sandwatchers in Australia visit a penguin sanctuary
- and Sandwatch activities in many other countries

Plus amazing updates, stories and photos from Sandwatch Teams from 21 countries worldwide!



## Sandwatchers "carbon farming" in Indonesia



IGAF/Sandwatchers of Indonesia are excited about the launch of their new "Carbon Farming Project"

Indonesia, a very biodiverse country with three large rainforests, is named as the world's fifth largest emitter of greenhouse gases. This reputation propelled the Indonesian government to internationally pledge to reduce 29% of its greenhouse gas emissions by 2030. To contribute to implementing this pledge, Indonesian youth have pledged to assist with some climate change initiatives.

Small and large action plans can all contribute. Starting with the Climate Smart Forestry, the Indonesian Green Action Forum (IGAF) was challenged to help accelerate the Indonesian commitment on greenhouse gas emission reduction. We are grateful to the SAYEN Handprint Challenge Program Grant for their help. After the program period ended, IGAF confronted a problem due to a lack of financial assistance causing delays in sustaining the project. However, this did not inhibit the zeal of IGAFers in mitigating climate change. Instead they sustained the project on a smaller scale via elementary schools. This year the project has a new title of Carbon Farming School.

Climate Smart Forestry leans more on mitigating climate change via forest conservation, whereas Carbon Farming School is tackles climate change by integrating education and agro-forest activities. The major intent of both projects is to find climate change solutions. Most of the projects' participants are children, youths, and local communities. As a brief explanation, the Carbon Farming School project educates students and local communities on the importance of the agro-forestry sectors for climate change solutions; and for enacting those initiatives on the ground. The project also seeks to contribute to Sustainable Development Goals 13 and 15. This project is now financially supported by the United Nations Environment Programme (UNEP) Eco-Peace Leadership Center (EPLC) and Yuhan Kimberly Ltd. The project will be carried out for a year in Jepara and Bogor Regency, Indonesia.



The IGAF/Sandwatch team of Indonesia

The ultimate goal of the project is not only to persuade more than 1,000 participants to get involved to the project but also provide a means to increase public awareness of climate change problems and solutions. The project will be in form of a school for both students (elementary school to universities) and local communities. The proposed eco-activities comprise education, agroforestry, biocomposting, eco-activities and games, and carbon stock measurement. For full details of the project, see: <https://www.facebook.com/IndonesianGreenActionForum/>.

By Achmad Solikhin, IGAF/Sandwatch Indonesia





## Kiribati integrates Sandwatch into school curriculum

The Curriculum Development Resources Centre (CDRC), a part of the **Kiribati Ministry of Education**, have been working on integrating **Sandwatch** concepts into the primary school curriculum.

The vision of the CDRC is “*Nurturing our children and young people in Kiribati to become wise and responsible citizens able to adapt to, and participate in their changing world.*” The curriculum reform started in 2012 and has been undertaken for years 1-6 (years 5 - 6 are still in progress). The reform is being funded by the **Australian Agency for International Development** and coordinated by the Kiribati Education Improvement Programme.

Sandwatch concepts have been incorporated in the curriculum for years 1 – 6 in environmental science and Kiribati community studies. Several materials have been produced including:

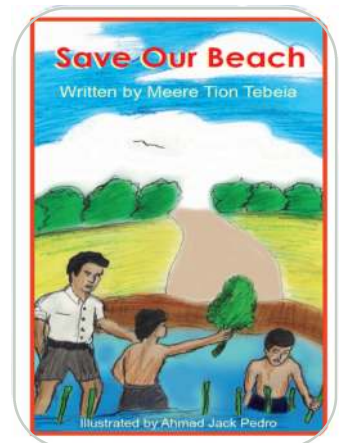
- Year 1 and 2 syllabuses: Kiribati Reader: Na kanga n taraua au Otanibanin
- Year 1 and 2 English Reader: Playing on the Beach – a story about a group of children who couldn't play on the beach because of all the rubbish, so they involved their friends in carefully sorting the different types of rubbish and

of all the rubbish, so they involved their friends in carefully sorting the different types of rubbish and cleaning up the beach and then keeping it clean.

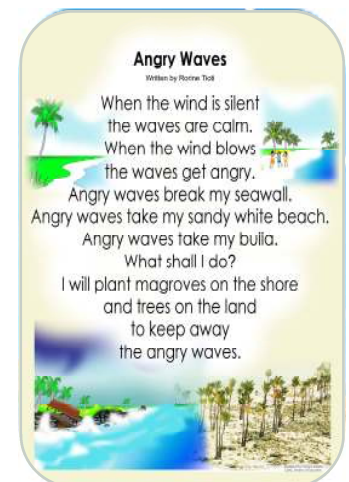
- Year 3: English Reader: Save our Beach – a story about a family who used to play on the beach and one day the beach disappeared. The children worked with their parents to build a small wall and plant mangroves to save their beach.
- Year 1 and 2: Kiribati Reader: Weather
- Posters for year 1 and 2: Our Beach
- Posters for year 3 and 4: Angry Waves

These materials provide information about the beach and include ways in which students can enhance and care for their beach.

The reform of the syllabuses for junior secondary school and senior secondary school started in mid-2016 and the Ministry of Education in Kiribati are looking at ways to incorporate Sandwatch activities, which also address the principles of education for sustainable development, at a more advanced level.



Cover of the Sandwatch based story book “Save Our Beach” now used in Kiribati



Poster poem for Kiribati students



## Sandwatchers visit Penguin Island, W. Australia

South Coogee Sandwatchers at Penguin Island, Western Australia  
Penguin Island in Perth is Western Australia's largest known breeding colony of the Little Penguin. Around 700 pairs breed on the island however they are very shy so the best way to see them is to visit the Penguin Discovery Centre where injured and older penguins are cared for.

Located in the Shoalwater Islands Marine Park the island is also home to a range of birds including Bridled Terns, the fish hunting Osprey and a breeding colony of the majestic Pelican that can be seen soaring on the oceanic winds. The shallow warmer waters around Penguin Island support small bait fish that make up the penguins diet

South Coogee Primary School students visited the Penguin Discover Centre with Perth Natural Resources Management (NRM) and City of Cockburn staff who provided information on the islands flora and fauna and discussed with the students the importance of conserving our coastal environment to protect our unique wildlife. The students completed a walking tour of the island looking at the Silver Gull and Pelican breeding areas.

Then the students completed a beach clean up to remove any debris that may cause harm to the islands' wildlife.

Craig Wilson, Coastal and Marine Program Manager.



Australian Sandwatchers at the Penguin Discovery Centre



## Sandwatch online database training in Dominican Republic



A screen shot of Sandwatch's online database. It's user friendly and simple to use

A training workshop on the **Sandwatch International Database** was held in the **Dominican Republic**, 18-22 May 2015. This was followed by a second training workshop in November 2015. The participants included teachers from 16 schools that have active Sandwatch groups, several IT technicians from the Department of Education and representatives of other organizations which provide scientific support to the Sandwatch groups.

The workshop was facilitated by Dr. Dave Gray designer of the Sandwatch International Database, Mr. Paul Diamond, Co-Director of the Sandwatch Foundation and Ms. Khalissa Ikhlef, Programme Specialist, **UNESCO**, Paris. Hosting was handled by the **Dominican Republic National Commission for UNESCO**: Ms. Maria Mercedes Brito-Féliz, Secretary General, and Mr. Franklin Jesús Tejeda, Projects Coordinator and their team.



The joint UNESCO, Sandwatch and the Dominican Republic's Ministry of Education team that led the Sandwatch training

During the next two days participants focused on entering their data for other beach characteristics, namely beach width, beach composition, waves, offshore currents, beach debris and water quality.

On the fourth day participants focused on how to integrate data entry into their plans for Sandwatch during the academic year 2015 – 2016. On the final day the audience was expanded to include other government ministries and NGOs who were interested in Sandwatch and there were presentations and discussions on future plans for Sandwatch.

A follow-up workshop was held from 19-20 November 2015. Participants presented the data that their Sandwatch Groups had entered. Dr. Gray reviewed any areas in the database that had caused difficulties for any of the groups. There was also a discussion of how to organise the data in the da-

tabase so as to display a time series as well as some of the difficulties the Sandwatch Groups faced with complete their field work. Plans were outlined on extending Sandwatch participation to other Dominican Republic schools.



Dominican Republic teachers conduct Sandwatch field training on a local beach

The first day focused on the scope and background of the Sandwatch International Database and had participants entering data for the general description of the beach, identifying the beach on **Google Maps**, uploading photographs and sketch maps.



## Sandwatch teacher training in Cape Verde

For the school year 2016-2017, the National Commission for **UNESCO** Cabo Verde and **Sandwatch Schools** held new teacher training on February 23th-24th, to build capacity and augment the number of teachers involved in Sandwatch. 19 school teachers from Salineiro ES, ES Manuel Lopes, High School Domingos Ramos, ES Chão Bom, Pedro Gomes ES, ES Achada Grande, Abílio Duarte ES, ES Constantino Semedo, ES S.Miguel and Jacinto High School Cónego received instructions from local Sandwatch trainers José Maria Pires, Geisa Baessa and Alvaro Cardoso, both in class and on Kebra Kanela beach. Following the training, the new Sandwatch facilitators conducted a project activity around San Francisco beach, 8

km from the capital, with 110 students and 22 teachers from 10 schools. The new Sandwatchers observed the characteristics of the beach, including marine and terrestrial flora and fauna, recorded the location of sea turtle nests, measured the beach dimensions and waves, and discovered that much of its sand had been mined for civil construction over the past 40 years. A long term resident, Mr. Mário Sanches, told the group how the beach was damaged by the sand mining and especially that nesting turtles have almost disappeared from the area. Date palms have also disappeared from the beach. By Ms. Elsa Fontes, National Commission for **UNESCO** Cabo Verde



New Sandwatchers in Cape Verde Islands



## Four schools in Oaxaca, Mexico start Sandwatch



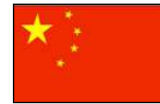
After contacting the **Sandwatch Foundation (Guardarenas)** via the **University of Puerto Rico Sea Grant College Program** in Mayaguez, **Puerto Rico**, a new group called **Guardarenas Mexico** started monitoring beaches along the Oaxaca Pacific coast of **Mexico** as part of their programme to combat climate change.

**Guardarenas Mexico** consists of four schools: Colegio Benjamin Bloom, Colegio Juan Rulfo, Colegio Calmecac, and Colegio Nacional de Educación Profesional Técnica-CONALEP 158, and one hotel: Hotel Villa Sol who have been regularly monitoring Coral Beach and Bahía de la Costa Chica de Oaxaca since 2015. They have also started adding their data to the Sandwatch International Database for the Coral Beach. Check out their facebook page @guardarenasmx and see their photos and video.



Sandwatch begins in Oaxaca, Mexico

## Peninsula School in China begins Sandwatch



We are excited about incorporating **Sandwatch** into our coastal studies programs and how the data being collected and analyzed will help boost coastal research efforts around the world. Our goal is to help influence the future generation of China's citizens and leaders to be champions for the protection and restoration of their ecosystems, and we look forward to making Sandwatch a part of our efforts. Erick van Til, Co-founder, Peninsula Outdoor School and The Field Work Campus

## Cuba introduces Sandwatch guidelines



The international **Sandwatch** project, which is applied in schools associated with **UNESCO**, has demonstrated its relevance in presenting and encouraging results in cognitive, effective, attitudinal and cultural thinking for students, teachers and the communities themselves. It demonstrates and puts into practice ways in which beaches and coastal environments can be conserved despite the challenges of climate change. It also supports the teaching of the curriculum and provides alternative avenues for learning.

The Sandwatch mission to learn, value and take action to preserve the local coastal environment is everyone's task, however, schools have a key role to play since they are responsible for developing knowledge, attitudes and values in children and youth.

The systematic and systemic use of the local environment provides for learning about the beach, where it is located, what happened in the past and how the environment is changing now, as well as what might happen in the future and how to build a different and better tomorrow. Some of the beneficial results obtained from the implementation of the project in the schools include increased awareness, know-

ledge, enjoyment and conservation of the beach environment on the part of the youth and children. Added value includes an understanding of the value of the beach and how it is connected with the wider environment. The socialization of the project's activities through the wider community and links with press, radio and TV has been an advantage.

Implementation of Sandwatch in other schools near ours has been through the development of a Sandwatch kit that contains the basic print and digital guidelines, innovative pedagogical methods, classroom and practical work, group reflection workshops and research work.

Evaluation of the project implementation process has taken into account the positive changes in the way students feel, think and act in relation to the beaches in their locality.

Dr Daniel Bulgado Benavides  
Coordinator of the UNESCO ASP Network, Vocational Pre-university Institute of Exact Sciences (IPVCE) Ernesto Guevara. Santa Clara. Villa Clara. Cuba



A new Sandwatch poster created by Cuban educators with support from UNESCO and other organisations



In Cuba older students teach younger students about Sandwatch



## Sandwatch at Mayaro Primary, Trinidad & Tobago



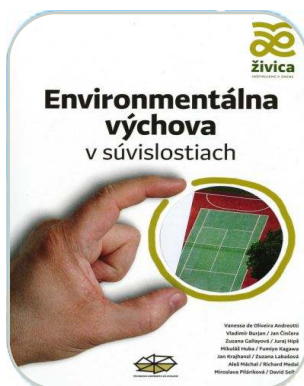
Trinidad Sandwatchers are experimenting with using plastic water bottles to make huts

**Sandwatch** has resurfaced at the **Mayaro Government Primary School** with 30 students, three teachers and some members of the public actively involved. The group is involved in monitoring and data collection activities at the beach. We are presently conducting a recycling project using plastic waste materials to create useful and innovative items. We have also had the opportunity to partner with The Kings Park Academy School in **England** and recently participated in Sandwatch training in **Guyana**.

The active members of the group enjoy being a part of this program. It has opened an avenue for communication and bonding among members as we now consider ourselves the 'Sandwatch family'. In this family we have a common goal of making the public aware of the effects of littering, erosion and ways they can help to eliminate these issues. We are determined to find ways and means to help deal with these concerns. Our idea of the "Recycling Project" came into effect after a cleanup activity called "SandSplash" which was held at Church Road in Mayaro in June 2016 in celebration of World Environmental Day. From this cleanup project we found that the most common type of trash was plastic materials such as; bottles, plates, cups, bags etc. Therefore, we thought if we can show the public an innovative way of recycling these plastics in a useful manner, there would be less plastic materials thrown into our water courses.

This program has given us numerous opportunities, which involved the partnering of the Mayaro Government Primary with the Kings Park Academy of England. This resulted in the exchange of best practices and our students and teachers have been exposed to new teaching and learning strategies. We were also very fortunate to participate in the Sandwatch Workshop in Guyana in October, 2016. Such are the opportunities available to all who are part of the Sandwatch program. Let us resolve to fly the Sandwatch flag.

The Sandwatch group of Mayaro Government Primary School is determined in making a difference, one step at a time. According to Marian Wright Edelman "If you don't like the way the world is, you change it. You have an obligation to change it. You just do it one step at a time". By Gourie Dukeran-Ali, Sandwatch Volunteer and Teacher, Mayaro Primary School, Trinidad Teacher



The cover of the Slovakian text book featuring Sandwatch



## Sandwatch featured in Slovakian textbook

**Sandwatch** was recently featured in an environmental textbook from the Technical University in Zvolen, in Slovakia. The title translates to Environmental Education in Context and Chapter 18 talks about Sandwatch being an emerging global dimension of environmental education.



## Sandwatchers on Madeira Island clean local beaches



The students of Madeira have issued a "Mannequin Challenge" to Sandwatch teams globally!

To celebrate the **World Environment Day**, [Galo Resort Hotels](https://www.galoresorthotels.com), in its environmental management program, organized a cleaning activity in a coastal zone, the "Ponta D'Oliveira" and in the sea, in the Natural Reserve of "Garajau". With the participation of the Natural Park of Madeira and the hotel's employees and guests, students from the eighth grade and teachers from "Escola Básica do 2º e 3º Ciclos do Caniço" cleaned the area of Ponta D'Oliveira and collected around 100kg of waste. The company Manta Diving Center and its clients joined the initiative in the underwater cleaning of part of the Natural Reserve of "Garajau" and gathered more 10kg of residues. This was another example of how the community working together can make a difference in the local environment and can inspire the younger generations to protect and preserve it. The Madeira Sandwatchers also issued a "**Mannequin Challenge**" to Sandwatch Teams globally...check out their video at [https://www.youtube.com/watch?v=nhgkk8n\\_6Bk&t=3s](https://www.youtube.com/watch?v=nhgkk8n_6Bk&t=3s) Ms. Cristina Freire, Sandwatch Coordinator, Madeira.

## Sandwatch expands in Puerto Rico



Recently, a group of students from the **Manuel García Pérez High School** began studying the Tres Palmas Marine Reserve (TPMR) in Rincón, Puerto Rico. To aid them, the students initiated the **Sandwatch Program** in the Reserve.

Sandwatch is geared towards instructing children, teens and adults about the marine and coastal environment's fragility, and the need to use said ecosystems in a sustainable manner. The Project was developed by the United Nations Educational, Scientific and Cultural Organization (**UNESCO**), and administered locally in **Puerto Rico by the Sea Grant Program**.

In March, 2016, the Amigos de Tres Palmas (ATP) non-profit organization and the University of Puerto Rico Sea Grant Program (UPRSGP) offered the students training in the Sandwatch Project. During the training, the participants learned firsthand about the resources found in this Reserve, and took several measurements of the beach. The students measured water quality and the profile and width of the beach, examined wind speed and direction, and water current direction, studied the waves, and analyzed sand composition. Also, they learned how to use different measurement tools, such as the Abney level, the anemometer, and the water quality testing kit, among others.

As a result of the training, 24 students and teachers will monitor Steps Beach (part of TPMR) in Rincón. This group, under the advisory of UPRSGP's Berliz Morales Muñoz, is interested in observing how the Reserve changes. Studying the Tres Palmas zone and its transformations will contribute towards the protection of the wide biodiversity it shelters. The Reserve functions as an essential habitat for coral reefs, sea turtles, fish, mammals and marine invertebrates. The variety of species and the need for conservation earned Tres Palmas its designation as a reserve in 2014. Its ecological value has made it a location with great educational and research opportunities.

Thanks to all these educational efforts performed in TPMR, the students have turned into community leaders, and have developed beach cleaning activities, educating the public about marine ecosystems and supporting environmental organizations in the protection of the Reserve's resources. The Sandwatch Project is a tool in this educational and community-wide process. This project goes together with ATP's mission, as this organization was established with the purpose of creating public awareness about the need to protect and sustainably use the resources in Tres Palmas. Since its inception, ATP has also worked under advisory and support from UPRSGP.

Also, as part of the Sandwatch Project, several scientific research projects are being developed, particularly projects related to water quality. Arnaldo Cruz, one of the participating students, performed a science fair project measuring water quality in three different parts of the Reserve. His project won First Prize at a district level, and went on towards the next phase within the Mayagüez Region.

During 2017, the students will continue monitoring the beach and educating the community about the importance of preserving and using the resources within this Reserve. In this way, they will foster the changes in the attitude in users of this natural treasure and promote that future generations can continue to enjoy it.

By Delmis Alicea Segarra, EdD

Specialist in curriculum and assessment, Puerto Rico Sea Grant Program

English language translation by Wilmarie Cruz Franceschi, MA



Sandwatchers in Puerto Rico have adopted the Tres Palmas Marine Reserve to study



Sandwatchers record beach profiles in Puerto Rico



Sandwatchers measuring beach width in Puerto Rico





Fragments of Hope have adopted Sandwatch for use at 3 schools in Belize as part of a shoreline protection project



Sandwatchers in Placencia, Belize conducting a shore walk



## Three new schools in Belize join Sandwatch

"My experience in enlightening Standard 5 and 6 students from the **Placencia International Academy (PIA)** about our sea and beaches through the **Sandwatch Program** has been one of the best experiences I've had." (Jennifer Ortiz, NRM Student at IJC)

Educating children of course, is not always easy but there is nothing more valuable than direct experience. This educational experience has been a little easier since the children taking part in the program are those living on the peninsula, giving them a firsthand encounter with the beach and its biodiversity. The children have shown that they are very fascinated by sea life and beach activities. In fact, they have already developed a passion for protection and conservation regarding our very own marine and aquatic resources.

The Natural Resource Management students from Independence Junior College have realized that many of the children have become sensitive to the health of the beaches, cayes and reef and in understanding the dangers of pollution, erosion, global warming and so on. It is truly a fun experience to share and sense children's energy, inquisitiveness and enthusiasm about the Sandwatch program.

We are honored by playing a role in supporting children's interests and involvement in protecting the ocean and keeping it healthy.

We certainly look forward to continue the Sandwatch program through the enlightenment of children and thank the **Fragments of Hope**, Staff and Administration of the three different schools, St. Alphonsus RC School in Seine Bight, St. John's Memorial Primary School in Placencia and Placencia International Academy in Placencia, and Sandwatch. The **WWF** funded the implementation for St. John's School and that we (Fragments of Hope) received an anonymous, private donation in 2016 to implement in 3 schools on the Placencia peninsula for 2017.

The program will culminate with site visits to Laughing Bird Caye National Park-where we have coral & mangrove restoration projects, both ecosystems highlighted as providing critical shoreline protection.

Lisa Barbara, Fragments of Hope & Sandwatch Belize <http://fragmentsofhope.org>



## Ecofinder Kenya partners with Sandwatch

**Ecofinder Kenya** is a non-governmental organization which works towards empowering grass root communities through holistic approaches in order to make them realize their potential and attain local sustainable development and environmental conservation. Our work involves capacity and skill building of community members towards the development of green enterprises and alternative livelihood sources so as to reduce pressures of over utilization of natural resources and encroachment into natural ecosystems like the wetlands. We encourage and support the use of biogas for cooking and compost manure for farming from ecological sanitation toilets and hybrid feed biogas digesters. We also work with community members in promoting green energy by distributing solar lamps and efficient cook stoves. To conserve the Lake Victoria wetlands using **Sandwatch** methods and protect the resource base of the livelihoods of the people in these wetland villages, we are also working towards conservation of the wetlands.

Our work on this involves restoration of the degraded parts of the wetlands through either active or passive regeneration, we are building alliances and mobilizing stakeholders to come together in the protection of the wetland from continued destruction. We are enabling alternative livelihoods innovation in the communities through Sustainable Green Enterprise development. As part of encouraging grass root environmental leadership in the communities, we establish Village Environmental Committees who are charged with manning the wetland restoration activities so as to replenish the wetland resources which are a source of livelihood to a large percentage of the communities along the **Lake Victoria** region.



The Ecofinders/Sandwatch team of Lake Victoria, Kenya



## Desertification Watch starts in Mongolia



Global issues such as climate change, desertification, land degradation, air pollution, and water deterioration are facing people around the world. Mongolia covers 1% of the earth's surface, and is isolated from oceans, lacks surface water, experiences an extreme continental climate, consists mainly of semi-desert and desert and is vulnerable to climate change. Desertification is a serious issue in Mongolia and is also a global environmental deterioration issue. Mongolia has a very different environment to that of small island developing states. Yet the approach used in **Sandwatch** is also relevant to desertification in Mongolia.

Professor Batchuluun Yembuu together with her colleagues at the Department of Geography, Mongolian State University of Education developed a new programme called Desertification Watch: Learning to Combat Desertification, which adopted the **Sandwatch methodology, M.A.S.T.**, which stands for **M**easure, **A**nalyse, **S**hare and **T**ake action,

Adopting the same enquiry based learning approach as used in Sandwatch, Desertification Watch employs simple methods and low-cost small scale equipment to measure:

- Weather and climate
- Rocks and minerals

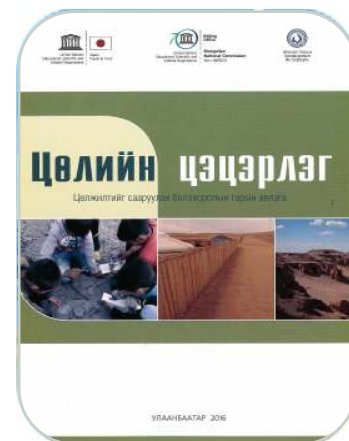
- Water supply
- Soil cover
- Plants and animals
- Pasture degradation and carrying capacity
- Traditional knowledge and local wisdom

The data are analysed, shared with the community and simple activities implemented to combat desertification.

Desertification Watch was developed by the Department of Geography, Mongolian State University of Education, with support of the UNESCO Beijing Office, the Mongolian National Commission for UNESCO and the Japan Funds-in-trust.

At present it is being piloted in secondary schools in two areas of Mongolia, Uulbayan and Tumentsogt soum and Sukhbaatar aimag.

The Desertification Watch manual is presently available in Mongolian and an English version is in preparation for publication in 2017.



The Sandwatch inspired "Desertification Watch" manual is available in Mongolian with an English edition due soon



View "Sandwatch is fuh all ah we" a poem from Sandwatch Guyana on our Youtube channel

## New website for Sandwatch and social media channels

The **Sandwatch Foundation** would like to welcome you to the new Sandwatch website. You can access it at [www.sandwatchfoundation.org](http://www.sandwatchfoundation.org) The country pages are still a work in progress. Take a look at the new site and tell us what you think – our email address is [sandwatchfoundation@gmail.com](mailto:sandwatchfoundation@gmail.com)

The Sandwatch Foundation maintains a presence on several social media forums and we actively encourage our teams worldwide to join and contribute.

We have a **Twitter** account <https://twitter.com/sandwatchr> and a dedicated **YouTube video channel** that contains all our training videos, interviews and submissions from teams around the world. To view them, go to [www.youtube.com](http://www.youtube.com) and type in "The Sandwatch Foundation" and they will appear.

On **Facebook** we have two (2) active forums, [www.facebook.com/SandwatchFoundation](http://www.facebook.com/SandwatchFoundation) which is our main FB forum, but we do also have an older, FB Forum, one that many long term Sandwatchers still use [www.facebook.com/sandwatch.programme](http://www.facebook.com/sandwatch.programme)

Once a member of the Sandwatch forums you can post photos, links, ask questions, communicate with other members all over the world and be regularly updated on Sandwatch events and activities.

We hope that you will join some or all of our social media forums and help to make them a viable, informative and fun way to exchange Sandwatch and community information. If you have any suggestions on how we can improve our social media presence please let us know!





## Sandwatch training workshop held in Guyana



Thirty teachers from around Guyana took part in a 3 day Sandwatch training workshop in Georgetown

From October 17th-19th, 2016, the **Sandwatch Foundation** with the generous support of the **Guyana Ministry of Education** and **UNESCO** held a training workshop in Georgetown for more than 30 primary and high school teachers from around the country.

Paul Diamond from the Sandwatch Foundation, Dave Gray from Canada and Andy Paul and his colleagues Gourie Ali and Megell Mohammed from **Trinidad** gave an introduction to Sandwatch goals and methodology to the educators including a field trip to a nearby beach at the mouth of the Demerara River and a demonstration of a very inexpensive, useful digital microscope.

Designer and developer of the Sandwatch Online Database, Dr. David Gray provided extensive training on how to utilize the database including registering users, data input, uploading photos, sketches and other information. Science Curriculum expert, Ms Petal Jetoo and her staff at the **National Centre of Education Resource Development** for Guyana did an exemplary job in organizing the workshop and in planning follow up activities and events including perhaps tying Sandwatch into other environmental and science based projects. Even the occasional power cut did not curtail training!

Home pages for each of schools have been established on our website under **Guyana** and we look forward to seeing what each school can accomplish using the new tools and skills. In addition there are two short videos filmed during the workshop viewable at the bottom of this page. As an exciting bonus, the Sandwatch team was flown to the interior of Guyana to visit the world famous **Kaieteur Waterfalls** and were even lucky enough to spot one of the rarest amphibians in the world, the **Golden Frog** which lives only within the leaves of the Giant Tank Bromeliads native to rim of the Kaieteur escarpment. Amazing photos of this expedition can be found on the Sandwatch website's Guyana homepage.

<http://www.sandwatchfoundation.org/sandwatch-workshop-oct-17th-19th-2016.html>



## Sandwatchers in New Zealand hold a Green Day



Stanmore Bay school in New Zealand has been doing Sandwatch activities for many years

As a **Silver Award EnviroSchool**, and long time **Sandwatch** member, the **Stanmore Bay school** was keen to start the new school year right. We invited our whole school community, including parents to take part in our annual GREEN DAY. Everyone worked hard to tidy up the school after our summer holiday break. Picking up rubbish, raking leaves and weeding were just a couple of activities that took place. Each class was responsible for an area, whether it was around their classrooms, gardens or the orchard. We have realised that living so close to the sea it is really important for us to take care of our environment. If not it can have an adverse impact on the ocean nearby. By Aleena and Dylan



## Sandwatch begins in the Azores

EBI Francisco Ferreira Drummond is located in S. Sebastião, Terceira Island, in the Azores, (islands in the middle of the North Atlantic Ocean) Portugal. We provide education to 600 students, from 3 years old to 15 (9<sup>th</sup> grade). Our school is also an **UNESCO** Associated School – **ASPNet School**. As an ASPNet school as well as in the Azorean Eco-Schools Project, we decided to introduce the **Sandwatch/UNESCO** project in our school as a project to help development of civic and environmental education and protection, particularly in the coastal environment. On June 11th, 2016, the school undertook its first set of observations and recordings of several natural and man-made features of selected bathing areas like Baía da Vila, Baía das Mós, also known as Baía da Mina, Baía da Salga, and 2 spots in Porto Judeu. This educational activity aimed at recording biodiversity, human activities in the area, erosion evidence, bathing area material, pollution, buildings in the area, sea conditions and objects in the sea, according to the Sandwatch manual. The students also drew a sketch map of the area and conducted a beach clean-up. The activity involved 104 students, 10 teachers and five other staff members.



Learn more about The Azores team on their Sandwatch homepage



## Sandwatch 'Citizen Science' on St. Croix, USVI



The East End Marine Park (EEMP) kicked off its **Sandwatch** beach profile program with the help of its high school **EcoCampers** this past summer. Sandwatch monitors ecological parameters like beach erosion (sand loss) and accretion (sand gains); water quality; sand sediments; water movement (currents and waves); and social parameters like human use and pollution.

The **Sandwatch** program is a great example of citizen science, where local groups participate in field work to record and report on their coastal environment. By identifying and monitoring threats facing our coastlines, participants also develop an understanding of ecosystem resilience and adaptation strategies for climate change and natural disasters. Sandwatch integrates sustainable development and ecosystem resilience into the learning and monitoring process. It is a user-friendly, hands-on approach to coastal management that empowers citizens to act for environmental awareness and change.

EcoCamp students from local high schools created a Sandwatch profile for Chenay Bay beach. Before EcoCamp, the USVI Sandwatch site had been dormant for years. EcoCamp provided baseline data for comparison with future reports on Chenay Bay and other beaches. EEMP plans to collect baseline Sandwatch data for other beaches adjacent to the Park and to support the adoption of beaches for regular quarterly monitoring by local community groups. EEMP will use Sandwatch as a tool for Crucians to know and care more for their beaches and coastal areas, while providing scientific data to inform local management decisions. The group has entered their data on the **Sandwatch International Database**. Hillary Lohmann, Friends of the East End Marine Park. Adapted from "St. Croix This Week" 2016' <http://www.stcroixthisweek.com>



Sandwatchers/EcoCampers begin their Citizen Science program in St Croix, US Virgin Islands

## Sandwatchers attend enviro meeting in Senegal



Nov 21-23rd, 2016: Teachers, directors and coordinators of **UNESCO** partner schools in 12 countries attended a training session to become coaches with the intention of training others in each of their countries. Trained teachers will help their local Ministry of Education achieve results in the continuing push to integrate climate change themes and projects within the official curricula of each country. Topics such as teacher training, creating a sustainable school, budgeting and dealing with waste, and the evaluation of the particular needs of each school in order to prepare an action plan for work teams were discussed. The meeting was held in Dakar, Senegal at the UNESCO Building. Teachers and coordinators from Greece, Brazil, Namibia, Japan, Oman, Denmark, Lebanon, Germany, Indonesia, France, Senegal and the **Dominican Republic Sandwatchers** attended.



Sandwatchers attending environmental conference in Dakar, Senegal

## Sandwatchers partners restore Colombian reef



18 October 2016: A group of divers composed of staff from the CORALINA Corporation, diving schools on the island, private enterprises and the NGO "Help 2 Oceans" were present in the northern area of the island called 'Little Reef' responding to damage caused by the effects of Hurricane Matthew which damaged marine life in this reef formation. The restoration work followed a preliminary assessment of the area ordered by engineer Durcey Stephens Lever, Director of the CORALINA Corporation and conducted by the Corporation's Division of Oceans and Coasts. The restoration consisted of replanting some of the elkhorn reef fragments found. The combined actions were guided and driven by similar initiatives. The famous environmentalist diver Jacques Cousteau (1910-1997) once said that faced with the consequences of the phenomena of nature, "we are able to drastically reduce its severity and consequences by acting quickly, and with understanding and unity of purpose". Article from El Isleño, 2016.



Restoring the reefs off San Andres, Colombia, after Hurricane Matthew damaged them

## Sandwatchers around the world!

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



The extremely rare Golden Frog seen by Sandwatchers on the Kaieteur Escarpment, central Guyana, Oct 2016



The Sandwatch "carbon farming" students of Indonesia



Mexico has launched Sandwatch activities with several schools in Oaxaca



Sandwatch students on Madeira Island cleaned up local beaches

*At the end of the United Nations Decade of Education for Sustainable Development (ESD) Sandwatch was nominated as one of the 25 most successful ESD projects from around the world to present their work at the World Conference on Education for Sustainable Development in Japan in 2014.*



Sandwatchers in Puerto Rico learning about water quality



Sandwatch teachers in Kiribati where Sandwatch has recently been added to the curriculum



Sandwatch expands in Santa Clara, Cuba



The Kaieteur Falls, central Guyana visited by Sandwatch in Oct, 2016



Sandwatchers in Mexico examining beach material



Sandwatchers in St. Croix taking beach profiles



The Fragments of Hope Group in Belize have begun Sandwatch