

SANDWATCH

**Adapting to climate change and
educating for sustainable development**



United Nations
Educational, Scientific and
Cultural Organization

What is Sandwatch

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

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

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



THE SANDWATCH VISION

Sandwatch seeks to change the lifestyle and habits of children, youth and adults on a community-wide basis, by developing their awareness of the fragile nature of marine and coastal environments and the need to use them wisely.



UNESCO/H-H Schlicht



Maria Mercedes Brito-Feliz



Marine Photobank/Octavio Aburto-Oropeza

Sandwatch in practice

Actively engaged in monitoring and analysis of local coastal environments, Sandwatch practitioners can react quickly to address urgent issues.

Hope Town Primary School: Abaco, Bahamas

2004 marked the start of the Sandwatch programme at Hope Town Primary School, and every year since, a new group of students gets involved. In 2005, their beach was badly damaged by several devastating hurricanes. The government used heavy equipment to scrape sand from the sea bottom to restore the sand dunes. Assisted by the community, Hope Town Primary Sandwatchers worked tirelessly to plant the newly-constructed dunes with 'sea oats', a hardy dune grass. Six years later, in 2011, the area was again impacted by a hurricane, but this time the dune stood firm – the roots of the sea oats did their job and held the sand in place.

'Sandwatch takes you places you never dreamed of going and gives you knowledge that will not be acquired on ordinary occasions. I have been able to impart new ideas into my classroom sessions. Sandwatch is an experience you will never want to forget.'

Marsha Gregg, Teacher,
Bequia Community High School, St. Vincent and the Grenadines

Education for
sustainable
development is
education for life.



Sandwatch approach

Sandwatch is based on the MAST approach: Monitoring, Analysing, Sharing, Taking action. This involves four simple steps:

- ① Monitoring the beach over time
- ② Analysing the results
- ③ Sharing the findings
- ④ Taking action

Monitoring the beach over time

1

The Sandwatch programme is supported by a richly-illustrated manual available in English, French, Portuguese and Spanish – with additional languages under development. Sandwatch uses simple methods and low-cost equipment to investigate the beach environment thereby facilitating access to schools, students and communities at all levels. Sandwatch groups can monitor several or a few key aspects of the beach, such as erosion and accretion, water quality, or the impacts of human activities.

To show how Sandwatch monitoring is done, a series of online tutorial videos have been developed, providing a step-by-step visual demonstration of the activities contained in the Sandwatch manual.



Gastón Fernando Deligne School and Sol Ana Nolan School, San Pedro de Macorís, Dominican Republic

Students on the south coast have been monitoring the beach and water quality at Montero Beach regularly. In April 2008 they found a significant increase in the amount of sediment suspended in the water. After some investigation they determined that this change was due to the construction of an unauthorized jetty at a nearby hotel resort. The Sandwatch data report prepared by the teachers and students was used by the Environmental and Natural Resources Agency to halt the illegal jetty construction and fine the developers.

'I think the Sandwatch program is about the only systematic coastal change measurement and historical database in the Lesser Antilles (Caribbean) ... that can give anyone long-term insights into more-or-less normal shoreline variability. This is vital information for adaptation to climate change and should be part of the routine monitoring regime of every coastal zone programme on small islands.'

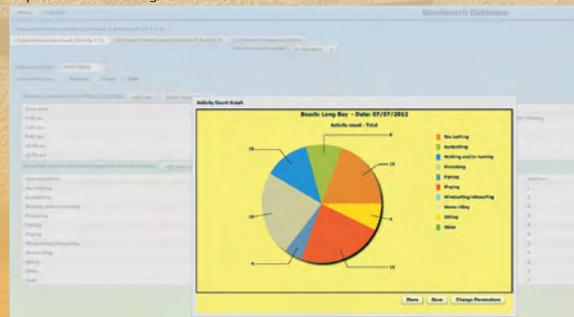
Bruce Potter, Director,
Island Resources Foundation

Analyzing the results

2

After measuring the beach the next step is to analyze and understand the results. Sandwatch maintains an international database where Sandwatch groups can store their maps and photos, enter their data, and view tables and graphs showing how the beach changes over time. The database represents an important historical archive of beach changes at specific locations that can be shared globally and in time will make a contribution towards global climate change assessments.

<https://sandwatchdb.org/beachdata/>



Avarua School: Rarotonga, Cook Islands

Students conducted an investigation into the water quality of the lagoon, which lies between the beach and the barrier reef. Helped by several government agencies, they monitored the level of nutrients and bacteria, as well as the clarity of the water. The students analysed their results and related the high levels of nutrients in the lagoon to animal wastes, fertilizers from agriculture, and discharge of sewage wastes. They prepared several recommendations for their government ministries and concluded with a strong message for everyone:

‘We cannot change what’s happening in our lagoon unless we change what we are doing on the land. People of this nation, we are the problem, we are the solution.’

Sharing the results

3

Sandwatch students around the world are sharing their activities with other schools and the wider community, developing their own newsletters, making presentations, participating in community meetings, conducting questionnaires and posting their Sandwatch videos on the internet.



English River Secondary School, Mahe, Seychelles

Students formed a Sandwatch Club and made a video showing their activities. The video included footage on measuring the beach and planting trees to combat the erosion that was taking place. Their video, which won a prize in the Sandwatch Climate Change competition, shows how keeping the beach healthy builds ecosystem resilience and reinforces climate change adaptation.

‘Students selected North East Point beach in Mahe for the beach clean-up activities in 2010 since it is an important recreational and residential area and also the site of a home for elderly. They wanted to give [the beach] back to the community and demonstrate that they cared about the cleanliness of the beach.’

Ms Wendy Noel, English River Secondary School, Seychelles

Sandwatch is all about understanding the environment in which we live, and helping students develop critical thinking skills and – where relevant – apply them to conflict resolution.

IPVCE Comandante Ernesto Ché Guevara, Santa Clara, Cuba

Sandwatch students focused their investigation on Los Ensenachos, a large cay where a major hotel was under construction. The students made an inventory of the local flora and fauna and worked with local construction workers to raise their awareness and understanding of the natural ecosystem and the need for environmental conservation. They convinced the developers to help move a community of threatened iguanas to a neighbouring site that was better protected.

‘However, there is always more work to do. We call upon organisations like UNESCO that promote peace and the rejection of damaging and destructive policies that result in the loss of biodiversity and undermining of environmental stability, to help support activities that target beach users and coastal communities to take action to protect the beach.’

Daniel Bulgado Benavides,
Instituto Preuniversitario Vocacional de Ciencias Exactas (IPVCE) Ernesto Guevara, Cuba



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Support for Sandwatch

Sandwatch is supported by the United Nations Educational, Scientific and Cultural Organization together with a wide range of other partners. It is coordinated by the non-profit Sandwatch Foundation.

Find out more about Sandwatch

The global Sandwatch network is connected through the Sandwatch website, available in English and accessible at www.sandwatch.org. The website includes information on Sandwatch teams in participating countries and their Sandwatch activities, links to publications and the regular newsletter *The Sandwatcher*.

The Sandwatch website also provides links to the Sandwatch database where participating groups upload their monitoring data, which visitors can view.

To find out more about Sandwatch, contact:

UNESCO HQ (sandwatch@unesco.org) or the UNESCO office nearest you (see the complete list at www.unesco.org/csi/field-offices)

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The digital version of this publication can be viewed and downloaded at:
www.unesco.org/csi/sandwatch

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