

Climate Change Education Inside and Outside the Classroom



UNESCO Course



United Nations
Educational, Scientific and
Cultural Organization



Module 2

Module 2 outline

Using the Sandwatch approach to understand the past and prepare for the future at the local level

- Exploring Sandwatch
- Field trip:
 - Preparation
 - Holding the field trip
 - Post field trip analysis and scenario building
- Further exploration of Sandwatch: training videos, international database

Exploring Sandwatch

- ✿ **1. What is Sandwatch**
- ✿ **2. Sandwatch approach**
- ✿ **3. Sandwatch and education for sustainable development (ESD)**
- ✿ **4. Sandwatch and climate change**

1. WHAT IS SANDWATCH

SANDWATCH

Children, youth and adults monitoring beaches and taking effective action to enhance their environment.

www.sandwatch.org

Countries participating: Australia, Bahamas, Barbados, Brazil, British Virgin Islands, Colombia, Cook Islands, Cuba, Dominica, Dominican Republic, Fiji, Gambia, Ghana, Guyana, Jamaica, Kenya, Malaysia, Maldives, Mauritius, Mayotte, Mexico, Montserrat, New Zealand, Puerto Rico, Sri Lanka, St. Croix, St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Seychelles, Trinidad and Tobago, Turks & Caicos Islands, United Kingdom, Zanzibar

THE SANDWATCH VISION

Sandwatch seeks to change the lifestyle and habits of children, youth and adults on a community wide basis to develop awareness of the fragile nature of the marine and coastal environment and the need to use it wisely; and to adapt to climate change by building ecosystem resilience.

WHO CONDUCTS SANDWATCH?

Sandwatch is a volunteer network of schools, youth groups, non-governmental organizations and other groups, coordinated by the non-profit Sandwatch Foundation, and supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and many other organizations.

2. SANDWATCH APPROACH

SANDWATCH APPROACH

M Monitoring the environment

A Analysing the results

S Sharing the findings

T Taking action

LEARNING BY DOING: MAST



Monitoring the environment



Analysing the results



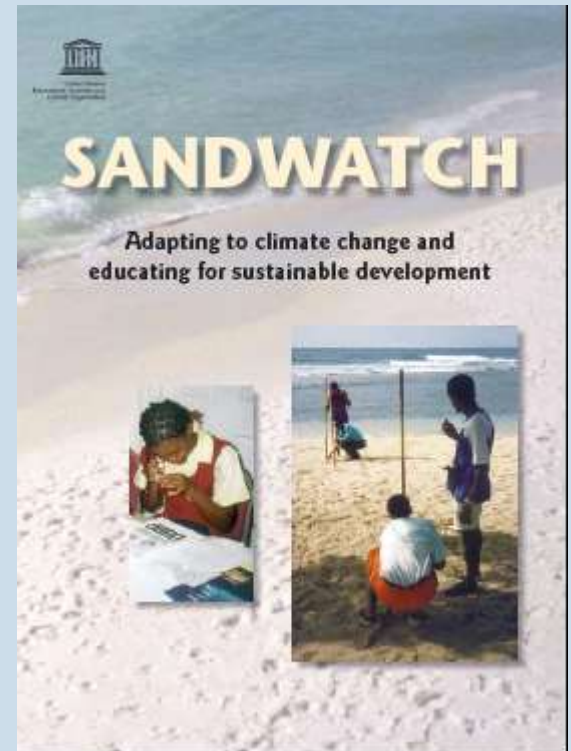
Sharing the findings



Taking action

SANDWATCH MANUAL

- Describes the MAST approach;
- Methods for: observing and recording; erosion and accretion, beach composition, human activities, beach debris, water quality, waves, longshore currents, plants and animals;
- Guidelines for establishing a Sandwatch communications network;
- Designing a project and taking action.



ANALYSIS WITH SANDWATCH DATABASE

Erosion and Accretion (Chapter 5)

(a) Profile site data

(b) Profile site photos

Select site

Old Beach Bar ▼

Update from profile file

Save Changes

Cancel

Delete Site

Name of measurement site

Old Beach Bar

Photo of starting point

Add/Update

Date site established (dd/mm/year)

23/09/1992

Description of starting point

Reference point is top of handrail at seaward end of boardwalk

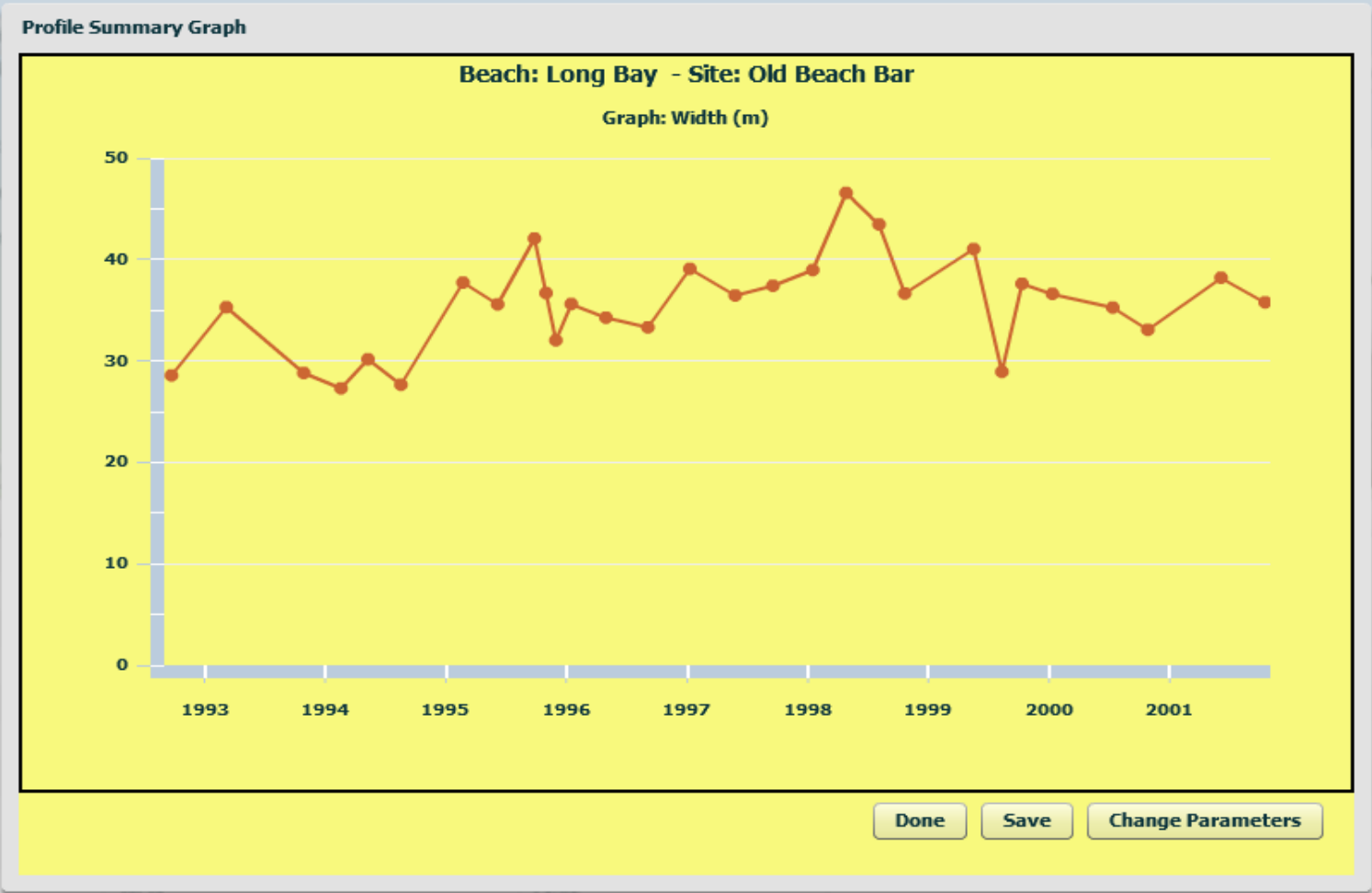


Show Graph

Export Spreadsheet

Date (dd/mm/year)	Beach width (m)	Beach profile area (m ²)	Comments
16/10/2001	35.76	49.07	
05/06/2001	38.19	42.06	
26/10/2000	33.08	38.90	
12/07/2000	35.25	44.28	
12/01/2000	36.60	40.17	
11/10/1999	37.62	53.45	
12/08/1999	28.95	42.56	
18/05/1999	41.02	65.84	
22/10/1998	36.66	52.55	
05/08/1998	43.45	71.62	
27/04/1998	46.58	73.70	
16/01/1998	38.98	58.60	

GRAPH OF BEACH CHANGES OVER TIME



SANDWATCH IN THE BAHAMAS

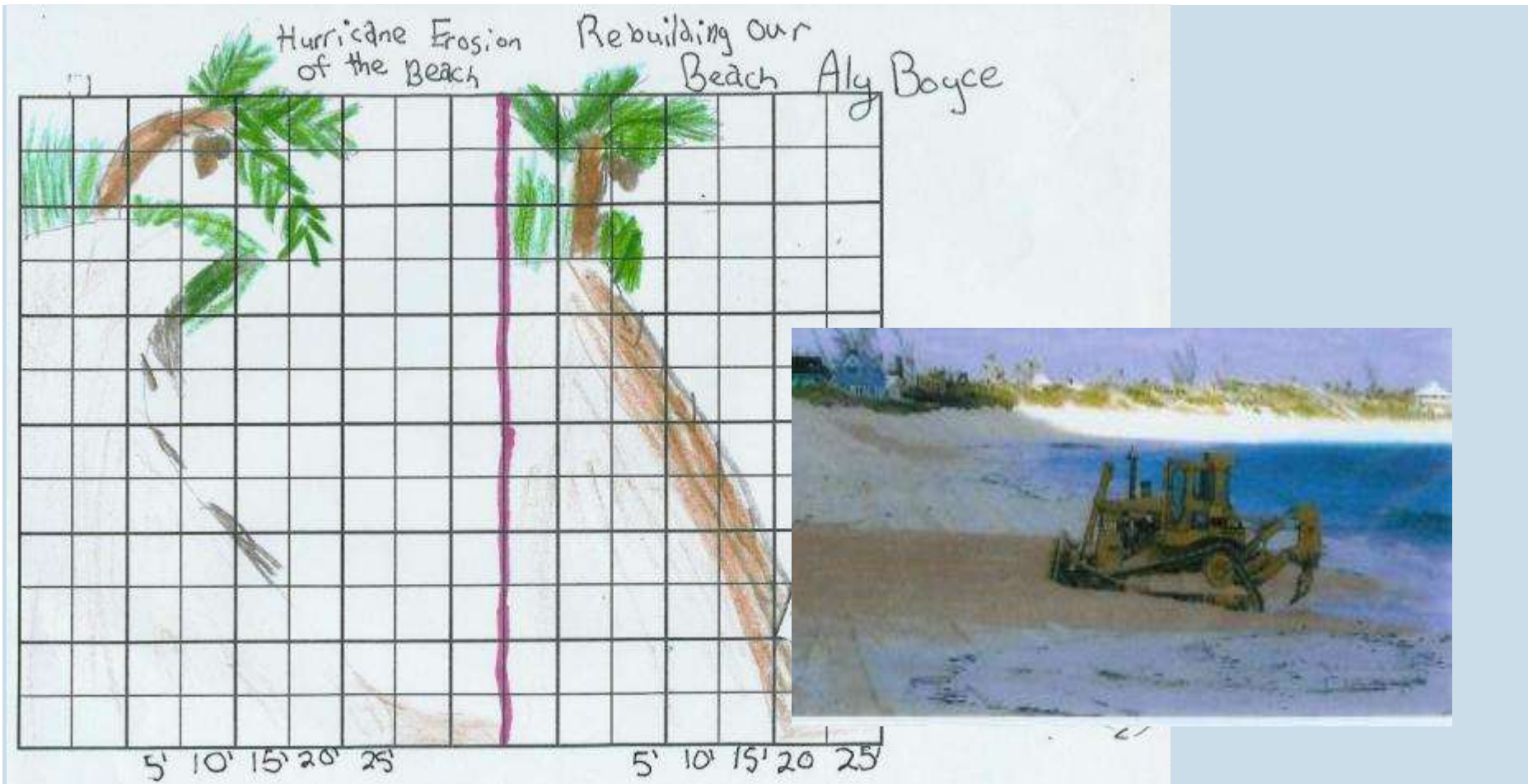


COASTAL DAMAGE RESULTING FROM A NATURAL HAZARD



After Hurricane Floyd, 2005, the beach was badly eroded

MEASURING AND ANALYSING



Sandwatch group measured the sand loss and observed Government efforts to rebuild the beach

COMMUNICATION AND TAKING ACTION



(a) Planting



(b) Dune vegetation four years after planting

AND MORE ACTION

2009 - Dune stabilised with sea oats



2011 - post H. Irene - the sea oats worked to hold the dune in place



Photo credit: Candace Key

3. SANDWATCH & EDUCATION FOR SUSTAINABLE DEVELOPMENT

EDUCATION FOR SUSTAINABLE DEVELOPMENT

Education for sustainable development is an approach to teaching and learning that seeks to empower people of all ages to assume responsibility for creating and enjoying a sustainable future.

OR IN OTHER WORDS.....

- Learning to know
- Learning to do
- Learning to live together
- Learning to be
- Learning to transform oneself and one's society

WAYS IN WHICH SANDWATCH CONTRIBUTES TO ESD

- Taking education outside the classroom
- Learning about real problems and seeking solutions
- Learning by doing
- Critical thinking
- Sharing information with others and learning to listen
- Responsible citizenship

SANDWATCH AND THE SCHOOL CURRICULUM

- Sandwatch has been integrated into lessons on science, social science, mathematics, information technology, language skills, creative arts, woodworking and practical skills.
- Sandwatch activities have been used by students for their school based assessments for external examination councils.
- In the Cook Islands, parts of Sandwatch has been formally integrated into the science and social science curriculum for 6-14 year olds, and similar efforts are underway in Kiribati.
- Children with special needs such as autism have been involved in Sandwatch.

A TEACHER'S PERSPECTIVE



“Sandwatch takes you places you never dreamed of going and knowledge that will not be acquired on ordinary occasions”

Marsha Gregg, IT teacher, St. Vincent and the Grenadines

A STUDENT'S PERSPECTIVE

“Sandwatch has made me wiser. When my Geography teacher comes to class, and he asks me questions, he is amazed that I can give such a quality reply.



When he asks how I know that, my simple answer is: Sandwatch.” Allana Stanley, Mayaro School, Trinidad

4. SANDWATCH AND CLIMATE CHANGE

SOME IMPACTS OF CLIMATE CHANGE ON BEACHES

- **Rising sea levels and more intense storms causing increased beach erosion**
- **Rising sea levels causing salt water contamination of underground fresh water supplies in the coastal zone**
- **Changing rainfall affecting river discharges and the amount of sediment being carried to the coast**
- **Rising temperatures affecting plants and animals e.g. sea turtles**
- **Ocean acidification affecting organisms that use calcium carbonate**

DEMONSTRATING OCEAN ACIDIFICATION



- Students in Australia collected samples of rocks, sand, shells from the beach
- Samples placed in seawater containers to which vinegar (acetic acid) was added
- Observations showed bubbles rising from shell samples (which contain CaCO_3) as CO_2 was released

BUILDING CLIMATE RESILIENCE

A beach in trouble



A healthy beach



THANK YOU



Youth and
Climate Change
Cool youth leading the way.

