



SOUTHERN ENVIRONMENTAL ASSOCIATION

SEA gull

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QUARTERLY NEWSLETTER

Sand Watch Program 2011

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St. John's Memorial Primary School was selected as one of the first schools to implement the "Sandwatch" project sponsored by the World Wildlife Fund [WWF] in collaboration with Southern Environmental Association [SEA] and **Lisa Carne** [*marine biologist*].

The Sandwatch program was first developed in Tobago in 1998 with funding from UNESCO, and has since been implemented in Dominica, St. Vincent and the Grenadines, and San Andreas, Columbia. The Sandwatch Program seeks to change the lifestyle and habits of children, youth and adults on a community-wide basis, to adapt to climate change by building ecosystem resilience, and to develop awareness of the fragile nature of the marine and coastal environment and the need to use it wisely. The first target group in is St. John's Memorial Primary. The specific objectives of the project is to involve primary school students in scientific observation, measurement and analysis of beaches using an inter-disciplinary approach. Activities include

monitoring the Placencia beach to see what changes will occur over the years and incorporate monthly monitoring by using permanent transects. Students have thus far engaged in classroom presentations to learn about erosion and accretion, climate



change, ocean acidification and its causes. The first hands-on activity was to identify an area on the beach where students will monitor beach changes using transects from fixed landmarks. All existing structures, trees, signs, animals, debris, beach users were identified. High and low water mark were also measured as well as interviews with older community members were conducted to learn of visible changes of the beach over the years. The Sandwatch Project will continue to identify and describe types of debris found

on the beach, observe and interview beach users and conduct a beach clean up to culminate the project. Students have been very excited to participate in the project and thanks to their classroom teacher Mr. Jesus Cawich for his support and dedication and principal Ms. Loburn Brown Martinez for her approval for standard five students to participate and her desire to continue creating meaningful activities for her students to be engaged in during their school year. SEA would like to say farewell to Mr. Jesus Cawich as he moves on to teach to another school and welcome Mr. Justo Torres who will now work with standard five students to complete the sand watch project.

SEA hopes that the Sandwatch program becomes a project that can be incorporated more in some classrooms activities and that can be adapted to the current school curriculum. Future plans include implementing similar Sandwatch projects in Seine Bight, Hopkins and Monkey River villages.

*Justino Mendez
Education & Outreach Officer*

Featuring: GSSCMR

“Gladden Spit is perhaps the most active spawning aggregation site in the country of Belize”

Whale shark heading towards the fish spawn

The Gladden Spit and Silk Cayes Marine Reserve was declared in 2002. The reserve was declared in part due to the importance of Gladden Spit as a site for spawning aggregations, which regularly attracts whale sharks during the months of April to June, making it a popular tourist destination. The marine reserve is a multi-use zone marine protected area, allowing for tourism as well as commercial fisheries. Gladden Spit lies about 36 km off the coast of Placencia Village, which sits at the tip of a long peninsula, the only long sandbar in Belize. The Gladden Spit and Silk Cayes Marine Reserve comprises of nearly 11,000 hectares (26,000 acres). The reserve is being managed by the Southern Environmental Association (SEA) and the Fisheries Department. Gladden Spit is so unique for its splendid spawning aggregation site. Every year hundreds of different reef fish aggregate and display their spawning behavior. It has one of the largest predictable whale shark (*Rhincodon typus*) congregations in Belize—an important tourism resource for coastal communities. The whale sharks travel from long distances to feed on the spawn of the many

commercial finfish species including that of the cubera snappers. Whale sharks are the biggest fish in the ocean growing up to lengths of 60 feet/18m. Divers and snorkelers get a rare opportunity to swim along with this magnifi-



cent creature. With its interconnected system of coastal habitats and currents, Gladden Spit has been recognized by World Wildlife Fund (WWF) as one of the priority eco-regions of the world, whose protection is vital for the conservation of the world's biodiversity. Since the signing of the co-management agreement in 2002, Friends of Nature, and now SEA, continues to work to make Gladden Spit and Silk Cayes Marine Reserve a model of conservation

and community involvement. The reserve is praised by many for its unique habitat and ecosystem. Whale sharks travel from far distances to Gladden Spit to feed on fish eggs. Each year the giants feast on the spawn of fishes.

Gladden Spit is perhaps the most active spawning site in the country of Belize. It is indeed one of the few sites in the world that allow tourists to scuba dive with these magnificent creatures. Good management of the park is crucial for the

future of this Marine Protected Area. It is imperative that SEA continues the good work they are doing and involve locals on the sound



decision-making of this important reserve.

Christina Garcia

Education & Outreach Director

Strengthening Enforcement in SBRC

With assistance from the MAR Fund, SEA launched the third phase of its Special Enforcement Program in January 2011. Having been successful in implementing both phase one and two of the program, SEA has moved forward with this initiative and has embarked on strengthening the efforts and efficiency of the Special Enforcement Program. This project aims to reduce illegal fishing activities within the broader Southern Barrier Reef Complex, focusing specifically in the buffer zone, those areas outside of the marine protected areas. SEA has had resounding success in addressing these illegal fishing activities since the inception of the program, but there is an urgent need for a sustained presence within the SBRC as the downturn in the



local tourism industry has increased fishing pressures. During the months of January through March 2011, SEA's effective interagency enforcement team, supported by local community members, fishermen and relevant government agencies, has carried out numerous patrols in the buffer zone of the Southern Barrier Reef Complex. These Enforcement patrols in the buffer zones of the Southern Barrier Reef Complex were conducted with the ongoing support of the Belize Police Force, the Belize Defense Force, the Anti-Drug Unit of the Police Department, the Belize Coast Guard and other NGO partners. The

Police Department continues to provide the necessary security for the enforcement team and the much needed support when incarcerating offenders. TIDE rangers are also engaged on these patrols when they are conducted in the southern waters near the Port Honduras Marine Reserve. When necessary, the Immigration Department and the Port Authority continue to provide all the necessary support in

bringing charges against offenders. In the month of January 2011, a total of sixteen (16) days patrols were carried out. In the month of February 2011, a total of seventeen (17) days patrols were carried out. To date, a total of eleven (11) days patrols have been carried out for the month of March, with intentions of carrying out further patrols for the remainder of the month. During this activity a total of forty two (42) day patrols and two (2) night patrols were conducted. These patrols led to twenty eight (28) incidents, resulting in thirteen (13)

charges and seventeen (17) written warnings being issued.

In addition to this, the Fisheries Department also provided support through a training session held with the Protected Areas Program Director. This was a direct follow up to the Capacity Building Training held last year. This training session was meant to ensure greater efficiency in report writing, evidence handling, prosecutions and conviction rates. During the second phase of the Special Enforcement Program, SEA identified the community of Sarteneja as a critical community. SEA continues with its efforts to build a working relationship with the community leaders and fishermen of this community.

SEA has made another visit to the community with the purpose of sharing the results of the previous year's work with the fishermen and getting feedback from them pertaining to these results and the enforcement efforts. SEA will continue to work closely with this community and others in Southern Belize, to improve collaboration and enforcement efforts.

'Shalini Cawich'

Protected Areas Director

“SEA has had resounding success in addressing the illegal fishing activities since the inception of the Special Enforcement Program.”

Climate Change and Coral Reefs– What are the risks?

Coral reefs worldwide are degrading at an accelerated rate. Increased coastal development and increased dependence on reef resources are to blame on a local scale, but there is a much larger, global problem – Climate Change. What are the real risks to coral reefs in our warming climate and what can reef managers do to help? To answer these questions we must look at the biology of the corals themselves. Coral reefs have been around for millions of years, and have withstood major environmental changes, but now our climate is warming at such a fast rate, it is questioned whether or not corals will be able to keep up and acclimatize to these changes. Coral reefs are composed of thousands of tiny animals called 'polyps'. Together, these polyps form colonies, which lay down calcium carbonate (limestone) skeletons and ultimately build reefs.

What are the Risk?
Climate Change is adversely affecting coral reefs, pushing the conditions of the surrounding seas above and beyond corals' limits. The main risks of climate change to reefs are: Sea Surface Temperature: Corals already live very close to their upper thermal limits. Even a slight increase in sea water temperature can cause the corals

to become stressed and expel their microscopic algae. This is known as 'coral bleaching' as the corals turn transparent and the bright white limestone skeleton can be seen beneath. If the stress is prolonged, this condition can result in coral death and the reef



may be quickly over-grown by algae. Global sea water temperatures have increased by 0.75°C between 1906 and 2005 and it is predicted that an increase of 5°C could occur by 2080 within the Caribbean (WWF, 2009). Sea level rise: Current predictions state that sea level in the Mesoamerican Reef region is rising by 2 mm per year. As corals require light to live, as sea levels rise, there will be insufficient light in deeper zones and these corals will not be able to survive.

Ocean acidification: Increased carbon dioxide in the atmosphere is dissolving into the oceans. This chemical shift will

affect the ability of corals to build their limestone skeletons; it has been predicted that corals may have a 20-50% reduction in their ability to build skeletons by 2050. Increased storm activity: Warmer waters may increase the number of hurricanes. Corals are broken by wave energy and by debris that gets carried onto reefs during a hurricane. The need for effective management is paramount in order to preserve reefs for the future. Marine Protected Areas (MPAs) have the ability to act as 'stepping stones' allowing coral and fish larval supply and dispersal from one region to another.

SEA's MPAs are already showing signs of climate change such as coral bleaching and excessive algal growth. Reef Resilience and Climate Change is one of SEA's focus areas for 2011. With so many people depending on the resources that coral reefs provide, from fisheries and tourism, it is imperative that as much as possible is done to preserve these reefs for the future.

*Dr. Annelise Hagan
Science Director*

Upcoming Events

- **SEA'S Annual Summer Camps**
- **Consultations on the 2010 Science findings**
- **Lobster fest– Lionfish tournament**
- **Annual General Meeting**
- **Youth Conservation Competition**
- **Environmental Clubs**
- **Cleanup Campaigns**
- **Field Trips**
- **Sand Watch Program**
- **Carrying Capacity Study for LBCNP, GSSCMR and SCMR**

Kid's Corner

'In The Sea' Word Search
Find the Hidden Words associated with marine life.

B H S I F Y L L E J F Q C W K J W J
 D S U P O T C O M N U C M I C P M V
 A K R V V U Y C Z Z L G M Q F X O I
 V D E N O M E N A A E S G X M B R I
 R L T K U W S E M U T U B N F L A S
 F L S H S W L S J Q U K O S B H Y H
 H U B V R T A B O P H T J E I G E I
 C G O O R W P N K M K I K A S L E X
 O A L U E Q L I U N Y H S H H N L Q
 R E T S S K O R A T N G U O A N S K
 A S N D E B P L E I T J L R R B Y O
 L B C U O A P S Q T V X L S K M M X
 R M H W G L U H E E S V O E P P I W
 E S F P U N P R L A O Y M T O D V H
 E B Q B F Y I H C A L H O O B S X A
 F A J U X B J R I H J I P X C Z D L
 P T Q E I D A F R N I M O M F H Q E
 N D E B U D O V M E C N Q N I B O B
 O Q Z E E H W Y F Z H S E A U R O W
 Z D S E A W E E D C V L L E H S H U
 K V K Y M C N M A R L I N C O G D S

- CLAMS
- CORALREEF
- DOLPHIN
- HERRING
- JELLYFISH
- LOBSTER
- MARLIN
- MOLLUSK
- MORAYEELS
- OCTOPUS
- OYSTER
- PLANKTON
- SEALION
- SEANEMONE
- SEAGULL
- SEAHORSE
- SEAURCHIN
- SEAWEED
- SHARK
- SHELL
- SHRIMP
- SQUID
- TUNA
- TURTLE
- WHALE

Riddles Riddles and More Riddles!

1. Where do fish keep their money?
2. Mary's Father has 4 children; named Nana, Nene, and Nini. So what's the 4th child's name?
3. From what heavy seven-letter word can you take away two letters and have eight left?
4. What three numbers have the same answer when added together and multiplied together?
5. What did the leg bone say to the foot?

- Answers:**
1. In a river bank, of course!
 2. Mary
 3. Freight or weights
 4. 0.2
 5. Stick with me and you'll go places



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SEA's Mission

The Southern Environmental Association is a non-governmental organization that continuously works towards improving stewardship and the environmental integrity of key marine areas in southern Belize through effective, collaborative protected areas management, community involvement, and strategic partnerships for the benefit of all stakeholders

Board of Directors

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For more information about SEA or the activities described here please contact Mr. Justino Mendez at education@seabelize.org or Ms. Christina Garcia at outreach@seabelize.org

About SEA: Who We Are

The Southern Environmental Association (SEA Belize™) is a non-governmental organization which formed in November 2008. SEA emerged from a merger of Friends of Nature (FoN) and the Toledo Association for Sustainable Tourism and Empowerment (TASTE) designed to ensure improved community involvement in the conservation and co-management of the natural resources in Southern Belize. SEA takes a practical, hands-on approach to conservation and management of much of the Southern Barrier Reef Complex. SEA has co-management agreements for day-to-day management of Laughing Bird Caye National Park (LBCNP) with the Forest Department, and Gladden Spit and Silk Cayes Marine Reserve (GSSCMR) and Sapodilla Cayes Marine Reserve (SCMR) with the Fisheries Department.

The Southern Environmental Association undertakes a wide range of tasks from community outreach to scientific research to law enforcement.

SEA works closely with the ten stakeholder communities of **Hopkins, Sittee River, Seine Bight, Placencia, Independence, Monkey River, Punta Negra, Sarteneja, Riversdale** and **Punta Gorda**. Under the co-management agreements with the Government of Belize, SEA assumes control of zoning enforcement, the behavior of users and is authorized to police within and between parks. SEA also works closely with the local stakeholder committees who formulate policy for the management of the parks. The organization currently has a staff of sixteen including administrative, outreach, science and enforcement. SEA's board of directors consists of eighteen members which include community leaders and key stakeholder representatives. For the past 18 years, in one form or another, SEA has been working with community members to improve management of their marine resources. SEA takes pride in its growing successes in both management and community involvement.