Cerf Island Conservation Program

Newsletter

March 2017~Issue 1

Cerf Island Conservation Program is a community based organization driven to enhance visitor experience while preserving its marine biodiversity. As we dive into our 2nd year, we're launching our very first newsletter with an issue being released every four months. This first issue represents the work carried out between November '16 to February '17.

A Brief Update

An important part of the program is the snorkeling and hiking experience provided to the guests visiting the island. Since November, 187 people have joined us in discovering the amazing reef life. A group of students from the School of Advanced Level Studies came to lead an expedition on the island as part of their exams and experienced its hiking trail.

Beach cleans are done three to five times a week in the mornings and those PET bottles and aluminium cans found are brought to the redeem center in Providence. In four months, we've recycled 2716 bottles/cans from these cleans and the hotels!

Volunteers come often to join our team for a period of 1-3 months as a part of their internships, master's certifications or work attachments. The CICP halls this period have seen 3 students from the Seychelles Maritime Academy (SMA), a current volunteer from Belgium, and a short term volunteer from Seychelles National Parks Authority (SNPA).

Snorkeling: 187

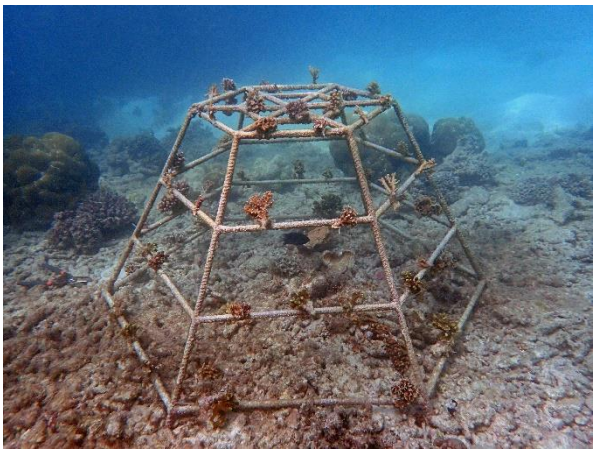
Hiking: 24

Recycled bottles and cans: 2716

Volunteers and work attachment students: 6

Reef Restoration, a New Start

These last decades, the coral reefs have suffered terribly from different stressors but largely due to the bleaching events of 1998 and 2016, land reclamation projects, the tsunami in 2004 and careless boating and tourism activity. After the last bleaching event, CICP decided to give a fresh start to the restoration project as we lend helping hands to the reef. New in-situ coral nurseries and artificial reefs were installed at the end of October 2016and play host to 9 different coral genera.



One of the newly propagated artificial reefs ©Savi Leblond

The in-situ nurseries placed in February '16 had suffered immensely from the last bleaching event and sadly only a handful of *Stylophora sp*. fragments survived. Rope nurseries were built from the remaining material and new corals of opportunity were propagated on them. Corals of opportunity are juvenile corals which have settled on poor and loose

substrates or those broken by storm surge, carless snorkeling and/or boating activities. These surviving colonies represent good targets for restoration purposes as they are more resilient and heat tolerant. Using these in restoration techniques could improve the overall resilience of the reef. The nursery-reared coral colonies will be transplanted onto new artificial reef frames to help rebuild the structural complexity lost due to aforementioned stressors. A monitoring and maintenance protocol is performed every month by diving as we remove those fouling organisms which compete with the fragments.

Long-term volunteer Chloé dives the nurseries to keep them clean! ©Savi

Coral fragments were attached on five artificial structures installed on three reef sites. A great advantage of artificial reefs is that they quickly increase the topography of the reef which bring back reef niches that had been lost. The structures are made of rebar, welded together, and coated with a mix of resin and sand. This coating prevents erosion and mitigates the growth of fouling organisms.

Vanessa and Chloé adding a coat of resin to the structures.©Savi

Growth of the colonies is monitored with photo analysis on a monthly basis for selected fragments. Pictures are analyzed with different software for comparison between users to develop a best practice method. ImageJ, Photoshop and CPCE (Coral Point Count with Excel extension) are popular photo analysis tools which offer a variety of pros and cons: free vs pay, user friendly, software reliability

Four selected fragments show the progression of monthly growth. As you can see, they are doing quite well! ©Savi

and others. Belgian René is doing his internship for 3 months and has decided to study the growth measured on the artificial reefs and will compare the results between the different genera and reefs. Fish point count surveys are performed every month to assess the (hopefully increasing) species richness and diversity surrounding these structures over time. Some territorial damsels have already claimed the structures, herbivores like rabbitfish and parrotfish have been helping us keep the frames clean of algae, corallivores like butterfly fish have been spotted around the frames and even a grouper decided to hang out in one of the reef's new home!

African Coral Cod grouper(top), B-spine-cheeked bream(bottom left), C-Chromis (bottom right) .©Savi

Coral ID Training and Reef Surveys

All of the interns and volunteers are trained in coral identification and it starts with coral workshops which explain how scleractinian corals grow, feed and reproduce as well as identification techniques for various coral families. Interns are then taken out onto the reefs for coral spotting. Mastering coral identification is very exciting. It was one of the favorite moments for SNPA volunteer Jayme and current SMA student Farah; we love fellow coral nerds on Cerf Island!

Savi and Farah on a coral spotting session.©Chloé Pozas

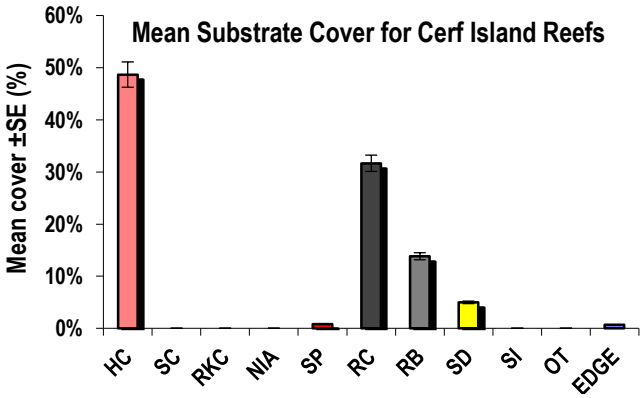
In November, coral recruitment surveys were conducted using 1m^2 quadrats. These allow us to estimate the abundance and diversity of coral recruits (0-5cm) and assess the recruitment success on the reef. An overall mean of 8 recruits/m^2 was found with dominating families being Fungiidae and Poritidae.

Acropora sp recruit on the reef. ©Savi

Chloé and Savi carrying out benthic transects ©Mauro Anganuzzi

Benthic surveys were completed in February which enable us to estimate the percentage cover of different substrate categories (hard coral, soft coral, recently killed coral, nutrient indicator algae, sponge, rock, rubble, sand, silt and other).

Our reefs show a good hard coral cover with a mean of 49%. During surveys, we also pay attention to EDGE species (Evolutionary Distinct and Globally Endangered) such as the monospecific *Physogyra lichtensteini*, which represent 1% of the hard coral cover.



Mean ±SE percent cover of the three shallow reef sites (northwest/west) of Cerf Island © CICP

Turtle Encounters

Every time we are out snorkeling, there is a chance of seeing either a hawksbill or green turtle. When this is the case, we try to take pictures of the right and left side of the turtle's face. With the pictures, we can identify the turtle using Individual Identification System (I3S), which is a versatile program also used to identify whale sharks, manta rays, cetaceans, and more. I3S pattern allows us to analyze specific patterns on the facial scales or scutes of the turtle, which is unique to the individual. While taking the photos, it is better not to descend from directly above the turtle but slowly next to it so as not to frighten the individual. Some turtles are quite "friendly" and stick around whilst others can be quite shy and swim off rather quickly despite vigilant tactics.

Farah practices cautious approach with a very friendly Hawksbill! ©Savi

It was very exciting to realize after identification that two turtles have been seen several times around Cerf.

Those hawksbill turtles received their own code name, Cerf.2016.005 and Cerf.2016.006 (the 5th and 6th turtles encountered in the year 2016). We are looking forward to encountering them again!

Cerf.2016.005 (Left) and Cerf.2016.006 (Right).

Morning encounters

In the morning, just before starting the working day, Chloé and Farah encounter different kinds of sea life while walking on the jetty just in front of Cerf resort. The most common are eagle rays and jackfish. Recently, they were lucky enough to see four eagle rays and a school of about 30 big jacks! Sometimes some lemon sharks pups (from September-mid March) or feathertail rays gliding underneath as well. A group of about 20 squid have also been seen several times. It's exciting to watch them flutter about and change colors with the use of their chromatophores. Each morning when they are dropped off that the jetty, they look around for any interesting sea life which chooses to make a graceful appearance.

Juvenile sicklefin lemon shark (Negaprion acutidens) passes under the jetty and over the seagrass beds. ©Chloé Pozas-Schacre

Nerdy Nudi

On Cerf, we don't only love corals but also nudibranchs! Every snorkeling trip turns into a quest looking for these tiny, incredible animals. Nudibranchs belong to the Molluscs and represent the larger order of sea slugs with over 2000 species. These animals are characterized by the absence of and external shell and the presence of a pair of sensory rhinophores located on their head. This particular organ comes in a variety of colors, shapes and sizes which makes every species very special. Detecting chemicals in the water, these horn-like structures can be used to detect food sources. Many species have already been spotted on Cerf reefs, but the quest keeps going; gotta catch them all! Cameras at the ready!

Some species encountered on Cerf Island reefs: Jorunna funebris (top-left), Phyllidia ocellata (top-right), Cyerce nigricans (bottom-left) © Savi Leblond, and Hypselodoris pulchella (bottom-right) © Chloé Pozas-Schacre

Animal Highlights

- **Fish -** Parrotfish are essential herbivores on coral reefs as they exert primary control on algal communities. Hence, they help prevent an algal phase shift from happening. Did you know that they can excrete 100kg sand a year?!

Parrotfish – Look at that fused beak!

- **Coral -** EDGE Coral Species – This species is physically and genetically distinct from other coral species. The colony surface is covered by fleshy vesicles which swell with water hence the nickname - "Pearl Bubble coral" or "Condom coral". Theses vesicles have been found to provide refuge to small shrimp (known as "bubble coral shrimp) and are known to be a contributing food source for hawksbill turtles.

© Chloé Pozas-Schacre

- **Cnidarians-**The Ocean is full of new surprises. One day, coming back from lunch, René spotted something on the beach thinking it was a bottle cap. It was actually a "Blue button" or *Porpita porpita*; a species which belongs to the Chondrophore, a group of Cnidarians. This little marine organism (often mistaken as a jellyfish) is in fact a colony of hydroids found in the tropical waters of the Pacific, Atlantic and Indian oceans. It lives at the surface of the sea and consists of two parts: the floating disk and the hydroid colony. The blue button sting is not powerful but may cause irritation to human skin. You might have seen it already with Wise Oceans!

A blue button or « Porpita porpita »© Farah Nasser

Word Scramble

- EDGE coral species: "ysg-yph-rao"
- Sensory organ: "reih-hpr-ono"
- Reef threat: "hce-agb-inl"
- Algal grazers: "sbre-bre-oivh"
- Hard Coral "ten-rac-inc-ilas"
- Juvenile coral "teu-rric"
- Fast growing coral "pa-oco-rra"
- On the reef frames we study species…"yti-erds-iv"

Acknowledgments

A giant thank you to:

- Our CICP partners who continue to support us financially and in-kind which allow us to carry out these studies, restore the reefs, connect with the community and increase our outreach.
- Vijay construction for welding our metal frames.
- Marine Savers-Maldives for advice on the artificial reef frames.
- Our volunteers for all of their hard work, dedication, enthusiasm and effort which allow this project to continually progress

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