



# Newsletter

July 2017~Issue 2

*Cerf Island Conservation Program is a community based organization driven to enhance visitor experience while preserving its marine biodiversity. As we strive to raise awareness about the fragile marine biodiversity and the importance of its conservation, we continue to interact with the visitors of Cerf Island as well as press on with coral reef restoration. This newsletter presents the work carried out from March '17 to June '17.*

## A Brief Summary

- 184 people have joined us in discovering the amazing reef life here on Cerf. These guided tours allow visitors from all levels of snorkeling to explore the reefs and see firsthand some of the restoration work being carried out as well as why this work is necessary.
  - Beach cleans are carried out first thing each working day as we remove shards of glass, a myriad of plastics and other leftovers from beach picnics.
  - We said goodbye to our long-term volunteer Chloe who has now gone to become project leader of the reef restoration project at Fisherman's Cove.
  - We welcomed three new interns studying to achieve their Master's Certifications from the EMBC+ (Marine Biodiversity and Conservation); Cynthia from France, Merijn from Belgium and Gabriel from Spain.
  - The team practiced fragmentation using donor colonies on the artificial frames located at our "Cerf" site and two new artificial frames were placed among the reefs.
  - Fish biodiversity and abundance surveys were executed.
- CICP hosted a group from the Victoria Accueil in order to showcase Cerf's reefs and CICP's restoration work
  - CICP was interviewed by a team from CNN International as a three part segment of a climate change piece for CNN's Inside Africa.

## Reef Restoration

As we carry on with Rinkevich's "Coral Gardening" approach to coral reef restoration we continue to monitor and clean our rope nurseries as well as monitor the growth of selected fragments on our reef frames.

Our rope nurseries which used to lie at 9m depth and monitored by SCUBA bi-monthly have now been moved to a shallower location. Unfortunately, the competitive algal growth and heavy sedimentation claimed quite a few fragments which influenced the decision to relocate the nurseries to a more suitable and easier reached location. This allows for weekly monitoring by snorkel with less effort (time, equipment and staff) and we have since then not experienced any new mortalities.

A set of epoxy/hardner tubes and loading gun was donated by Dr. Jude Bijoux to CICP as this is one of the methods used in the restoration project at St. Pierre in Curieuse Marine National Park. This method can be applied underwater which allows colonies to be cemented directly to the substrate. Surviving Stylophora colonies from the February PVC Tree-style nurseries as well as a selected few fragments from the rope nursery were used in this

trial so team members could be prepared for the upcoming transplantation set for September.



Figure 1 – A pocillopora damicornis colony from the nurseries used in the epoxy trial.

With the removal of the ropes containing dead fragments and using surviving fragments in the epoxy trial, we were able to create a new rope nursery using corals fragmented from the artificial reef frames placed in October. Having read the various literature on fragmenting methods, and seen the fragmenting videos from Nature Seychelles, we used a small chisel and hammer to fragment Acropora colonies and provide 55 new fragments for the nursery. Fragmentation occurred so that no more than 10% of a colony was collected from, and fragments were portioned into a minimum of 4cm segments.



Figure 2 – Rope nurseries relocated over shallower rubble beds to enable more frequent and less effort dispensing monitoring/cleaning. Left: Stylophora colonies from October. Right: newly added nursery with Acropora fragments.

Two new artificial frames were created using the fragmentation methods mentioned above as well as corals of opportunity. These two new frames have been placed among rubble beds near the reef so as once again to add structural complexity as the Acropora fragments will provide refuge and foraging grounds. Go pro footage of the area was taken pre installation so as to have a stationary and undisturbed visual census for fish life to be compared to future Remote Underwater Video Surveys.



Figure 3 – EMBC volunteers Cynthia and Merijn carefully secure the fragmented corals to the frame.



Figure 4 – Photos showing before (top) and after (bottom) placement of two new frames.

The fragmented colonies from the reef structures were then photographed on a weekly basis to monitor the scarring process and overall colony health. Most *Acropora* colonies healed (fragmented area covered with new tissue and polyps) within a week, while others healed fully in 3 weeks.



Figure 5a – Tissue from this *Acropora* colony quickly healed with recovery obvious by polyp and tissue regeneration by week 1.



Figure 5b – This *Acropora* colony had a larger affected area and recovery was a bit slower however tissue scarring was still evident by week 1 and five new axial corallites visible by week 3.

This allows us to practice fragmenting methodology so that a larger source of live corals can be supplied for expansion of nurseries and artificial frames without detrimental damage to the community from wild donor colonies.

Growth of selected colonies are still monitored with photo analysis on a monthly basis. Pictures are analyzed with Photoshop and Image J. Though Coral Point Count with Excel extensions (CPCe) is a widely used software for this purpose and is free to the public, it was found to be much less user friendly and much more time consuming than the other programs thus no longer in use for our studies. The project leader prefers the use of Photoshop but since this software is not available for free, interns use Image J as a tool to practice growth monitoring.



Figure 6 – Nov-Feb-June photographs of a *Pocillopora damicornis* colony. Measuring a L-3.25cm/H-4.43cm in Nov and L-7.55cm/H-8.02cm in June for a surface area growth of 346%.

The fish species diversity and abundance is still carried out on a monthly basis as a 7 min stationary point count (SPC) for each of the 5 original frames.

We can see a general increase in species richness and abundance on most with the exception of Fairy Tern A (figure 7).

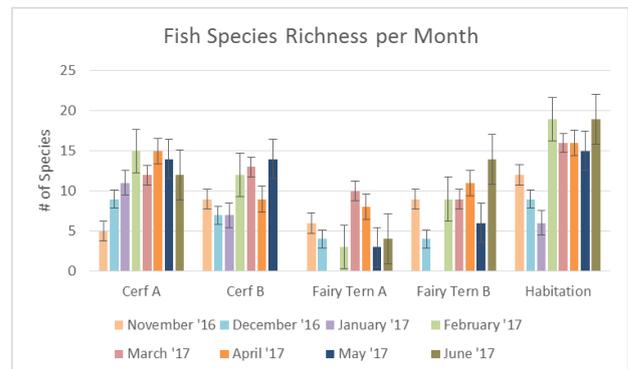


Figure 7 – A general increase in the species diversity encountered in the survey area evident for all frames except for Fairy Tern A.

Figure 8 shows an increase in fish abundance again except for Fairy Tern A. The spikes seen in Cerf A and Habitation show when a large group of herbivores entered the survey area and displayed grazing on the artificial structures.

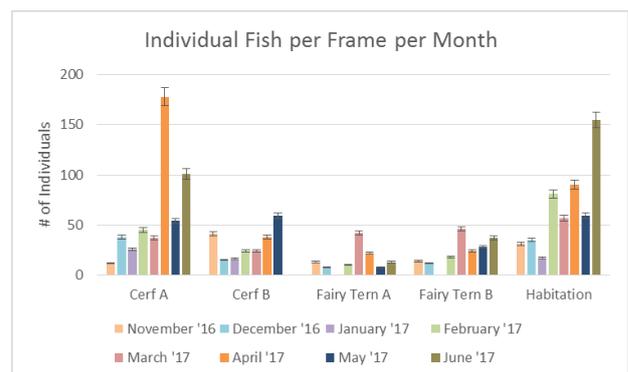


Figure 8 – We can see an increase in the number of individuals encountered on most frames again except for Fairy Tern A.

Fairy Tern A's performance regarding fish species diversity and abundance can be explained by its location on the reefs compared to the other frames. Though all have been placed on rubble beds, Fairy Tern A lacks surrounding reef rugosity as well as live coral cover. Fairy Tern B also lacks live coral cover however, it still has structural complexity surrounding the area compared to the completely flat rubble bed in which Fairy Tern A lies.

## Reef Surveys

This quarter Savi and Chloe carried out fish abundance and diversity surveys for the West reefs

of Cerf Island. 12 transects (6 belt and 6 SPCs) were carried out for a total area of 1730m<sup>2</sup> surveyed by snorkel. Looking at figure 9, it is clear that the reefs of Cerf Island are dominated by herbivores (mainly parrotfish and rabbitfish) followed by invertivores (mainly emperorfish and wrasse).

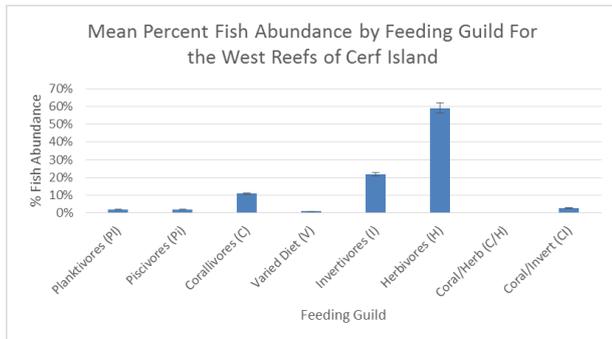


Figure 9 - 59% mean of herbivores (*Scaridae* and *Siganus*) and 22% invertivore (*Lethrinus* and *Cheilinus*) fish abundance.

When comparing abundance and diversity for each site, Fairy Tern had the greatest species richness yet the lowest fish density (figures 10 and 11). With this site being the least visited by snorkelers and touring vessels, we have earmarked Fairy Tern site for our first coral transplantation so as to maximize success rates. By increasing the live coral cover and structural complexity of the reef, we hope to see an increase in the fish density over the coming years.

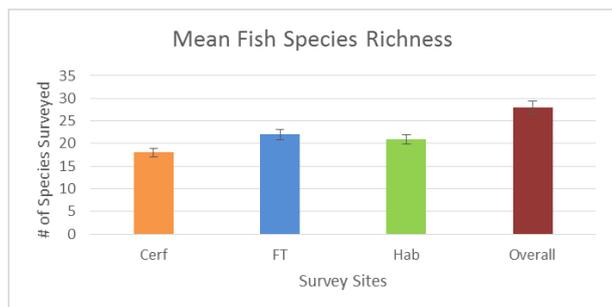


Figure 10 – Species richness per site surveyed

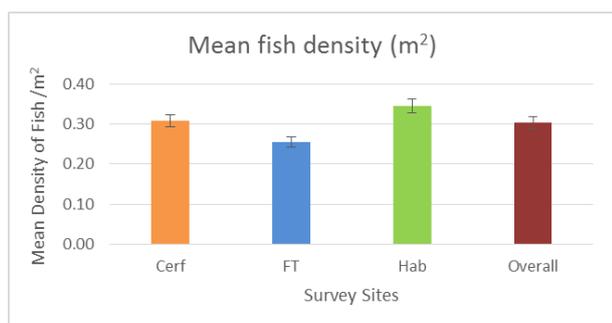


Figure 11 – Fish density per site surveyed

## Victoria Accueil visits Cerf Island

A group of 14 people led by Veronique Dupont visited in April in order to discover the reefs of Cerf Island. This group was given a briefing into the importance of reef restoration, the reasons as to why this work is necessary as well as how to help. It was a delight to be able to guide this group around the reefs and point out the colorful fish and surviving coral colonies. Not to mention the smiling faces and happy squeals for when some members spotted a ray and others were excited about the school of parrotfish swarming about and grazing on the algae letting us see the cause of that familiar “crunching” noise underwater.



Figure 12 – The group with volunteer Rene poses for a picture pre-snorkel over the lush seagrass beds, sargassum forests and reef structures.

## CNN Inside Africa

In May, a team from CNN International came to Seychelles to report on climate change and mitigation techniques taken in the islands to combat its effects. Marine Conservation Society Seychelles directed the team towards CICIP and the Anse Forbans Community Conservation Program to highlight the impacts and effects felt by residents and the resulting drive to form these community based, conservation initiatives. This three-part documentary includes segments titled: “115 islands vs Climate change”, “After the Storm – How to Rebuild a Reef” and “Seychelles Is Making a Difference”.

CICIP was filmed as the team beach cleaned, delivered guest briefings, led guided snorkels, and

took part in the monitoring and maintenance tasks required as part of the coral reef restoration project.

Dr. Jude Bijoux and CICP project leader Savi Leblond were interviewed as part of the documentary to discuss the importance of corals, their benefits, threats and restoration efforts here at Cerf Island and Curieuse Marine National Park.



Figure 13 – Dr. Jude bijoux being interviewed by scrip writer Olivia Yasukawa from CNN International.

We also had Aisha Fanchette (previous Seychelles Maritime Academy work attachment student now working with Chloe at Fisherman’s cove) discussing the process of resin-sand-resin onto our artificial frames and how this protects the metal from rusting and provides a suitable surface for coral attachment.



Figure 14 – Aisha explains the Honeymooners heart frames which will be available to those getting married or celebrating anniversaries here at Cerf Island Resort.

The documentary was released in early July and can be streamed online via the CNN Inside Africa Website.

### Turtle Encounters

This quarter we have had 21 turtle encounters with 5 individuals resighted and 9 new individuals added to the database.

Individual Cerf.2016.006 is frequently encountered and has been seen a dozen times since June of last year. This particular individual has the most unique scute pattern on the left side and is easily recognized even without use of photo ID.



Figure 15 – A nice ID shot showing the distinct scute pattern for this individual.

All of the turtles resighted here at Cerf are available for adoption and naming! A 500 SCR donation provides the adoptee with naming rights to those unnamed individuals, certificate of adoption, monthly updates on sightings and behaviour of your turtle, as well as fact sheets. Adoptions are good for 12 months so let us know if you would like to adopt one for a friend, family member or for yourself!



Figure 16 – Map of Cerf Island portraying locations of our turtle encounters thus far.

An even more than usual exciting turtle encounter this quarter was on the 7<sup>th</sup> of May when two hawksbills were foraging in some coral beds! It has happened before where multiple encounters occur on a snorkel however, this was a first for our team to see 2 hawksbills so near to each other.



Figure 17 - Individuals Cerf.2016.006 and Cerf.2016.007 swimming and rooting around in the corals. #ForagingFriends

### Nerdy Nudi

This quarter hasn't been the most successful when encountering nudibranchs however, we have had

regular sightings of the peacock nudi (*Cyerce nigricans*). This nudibranch has beautiful black cerata, speckled with gold and lined with orange which can be released as a defense mechanism.



Figure 18 – One of the larger individuals encountered (about 7cm) clinging onto the substrate. The surge moves the cerata about and it is clear in these photos why its nicknamed the peacock nudibranch.

### Rascally Tourists

Upon returning from lunch one afternoon, it was brought to our attention that there were some coral colonies resting in the sun. This was very odd indeed and upon further investigation, 6 coral colonies were in fact baking in the sun to dry because some tourists desired to create their own keepsakes. Not only had they taken live coral outside of the water to kill and dry (it is to be noted that as a marine park, it is illegal to take anything out), but three of the corals were in fact *Acropora* colonies which had been ripped off our coral frames as evident by the fresh, white scarring and cable tie ends! These Russians barely spoke English and were baffled as to why we took the corals back into the water. Trying to explain to these tourists why it was necessary for corals to remain in the water resulted in many facial expressions and exaggerated mannerisms as none of us speak Russian but using the CICP booklet as a visual aid disarmed the rising tension. The three *Acropora* colonies were immediately reattached to the frames and no lasting damage was done, however the rather large and stunning *Fungia* colonies did not recover from their ordeal.



Figure 19 - Top – colony proudly on display in the sun by the tourists. Bottom – reattached and surviving.

### Animal Highlights

- **Fish** - Rabbitfish are essential herbivores on coral reefs as they exert primary control on algal communities. These are typically seen in pairs though the African white spotted species is most often seen in schools. Did you know that they have venomous tips on their dorsal spines? These kordennyen are a popular catch in the bamboo/steel kazyes and its been reported for some consumers to have allergic reactions. Those with hypertension are more prone to these reactions which have been described as dizziness and/or numbness/itchiness of the lips and throat.



Figure 20 – A school of African White Spotted rabbitfish encountered on the Sargassum flats here on Cerf

- **Coral** - Maze corals are an attractive array of corals to all snorkelers as it's quite easy to get lost in their labyrinthine aesthetics. Though some colonies had 100% mortality and others suffered extensive tissue loss from the 2016 bleaching, the reefs at Cerf Island are happily littered with these surviving massive colonies including those that were resistant and didn't display any evidence of coral bleaching.



Figure 21 - A Coco de Mer shaped *Platygyra sinensis*.

- **Chordata** - With the Southeast monsoon making its presence known, the surface temperatures have cooled down to a chilly 27°C. This season provides the inner islands with upwelling as nutrients and cooler waters are brought from deeper waters. This increase in nutrients sets off a chain of events beginning with plankton to feed on the particles. Larger animals come to feed on the plankton as the food chain becomes prominent. Keep an eye out for mantas and whale sharks! #tistheseason

Whilst avoiding some of the jellies on our most recent snorkels, we came upon a familiar set of organisms; a colony of salps.



Figure 22 – A colony of salps.

These salps opportunistically feed in the water column though their main diet consists of phytoplankton. They are often not seen in huge numbers off coastal areas as inorganic particles can clog up their feeding net causing them to sink and die. Their body is 95% water and thus not a huge nutrition source for animals which require high energy foods.

### Weekend Fun

Time seems to have a habit of speeding up as life goes on and there's always so much to do! On their days off, the interns were able to explore Mahe as well other areas within the St. Anne's Marine National Park. Between the snorkeling, hiking, blogging and other activities, the interns dedicated a couple of days to kayak around the marine park and visit Moyenne Island with some of the interns from other projects which MCSS runs on Mahe.



Figure 23 – Excited faces (Meirjn, Gabriel, Cynthia) before exploring the other islands of the marine park via kayak. Nice selfie stick!

### 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.
- Our volunteers for all of their hard work, dedication, enthusiasm and effort which allow this project to continually progress



Newsletter content compiled by Savi Leblond.