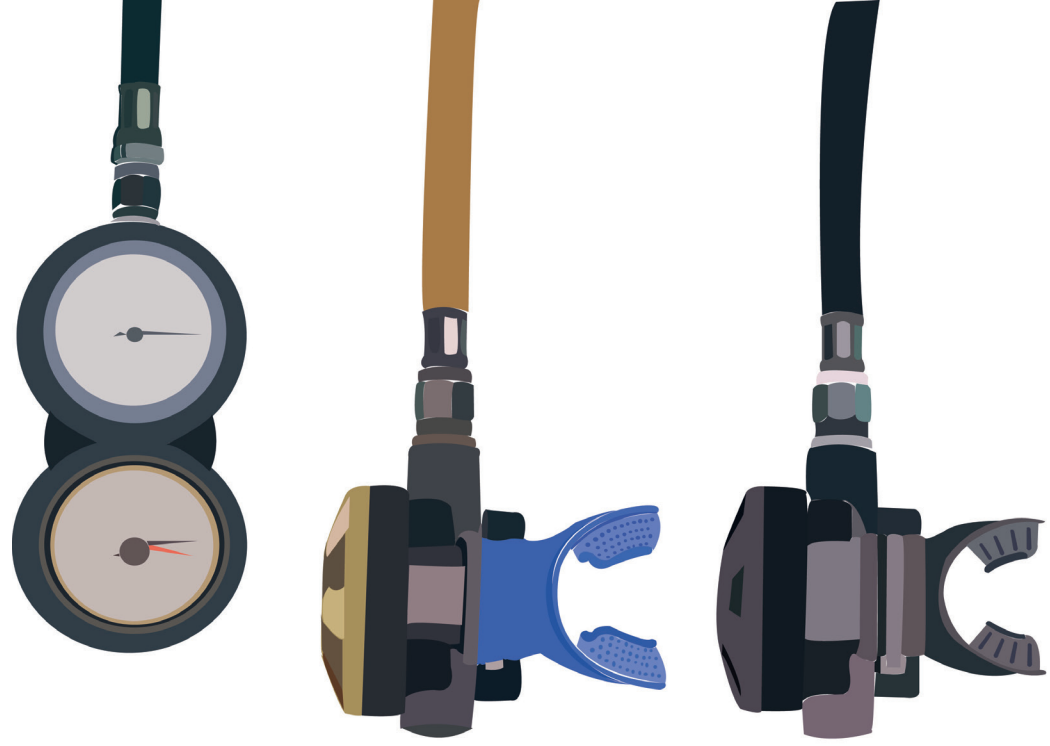
CAP TERNAY

2019

FINAL RESULTS



Number of Volunteers: 98 vols

Number of surveys done: 1196 surveys

Number of hrs. underwater: 370.5 hrs.

Area surveyed: 82,500 m²

Coral Lit

Nº of Volunteers: 10

Nº of sites surveyed: 14

Coral Quad

Nº of Volunteers: 8

Nº of sites surveyed: 16

Fish 1

Nº of Volunteers: 38

Nº of sites surveyed: 22

Fish 2

Nº of Volunteers: 24

Nº of sites surveyed: 22

Invert Lit

Nº of Volunteers: 9

Nº of sites surveyed: 14

Invert Belt

Nº of Volunteers: 18

Nº of sites surveyed: 22

CORAL

Lit edition

Number of Lits completed:
84 Lits

Distance surveyed:
840 m.

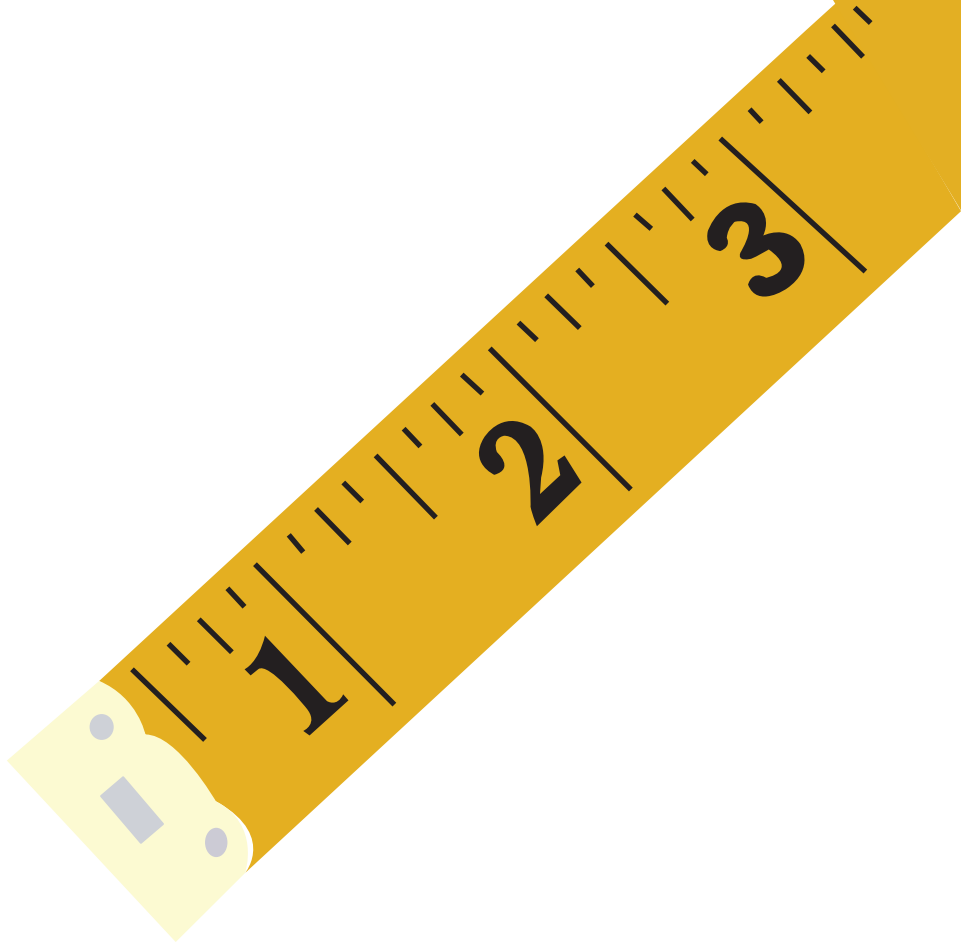
Mean hard coral cover:
16.29%

Site with the highest coral cover:
Conception North Point

Site with the lowest coral cover:
Baie Ternay North West

Most abundant genus:
Porities

Most abundant lifeform:
Encrusting



It was a busy year here at Cap Ternay in 2019. Thanks to the effort of many staff, scholars and volunteers we have now 15 years' worth of data that can help us understand the dynamics and changes of the reef.

Unfortunately, after analysing 2019s results, we discovered live hard coral cover has reduced by 9% from 2018 numbers. We believe this was caused by the small bleaching event that affected the Seychelles at the beginning of the year between the months of March and May, where temperatures where reaching 31 degrees in certain areas.

The highest coral cover was found on the granitic site Conception North point. Usually, granitic sites have more abundance of corals because of the type of substrate. Granitic surfaces give corals a better place to attached than carbonate reefs.

Porites once again is the dominant genus on our reef. This type of coral is very resilient, making them more resistant to disturbance events such as bleaching and acidification.

Sadly, these are not very positive results and we are expecting more bleaching events in the future. Our coral reef is struggling, still we need to continue with our assessments so we can understand how our corals behave after these stressful events, and maybe in the future we will have the appropriate tools to help them.

CORAL

Quad edition

Number of Quads completed:
480 Quads

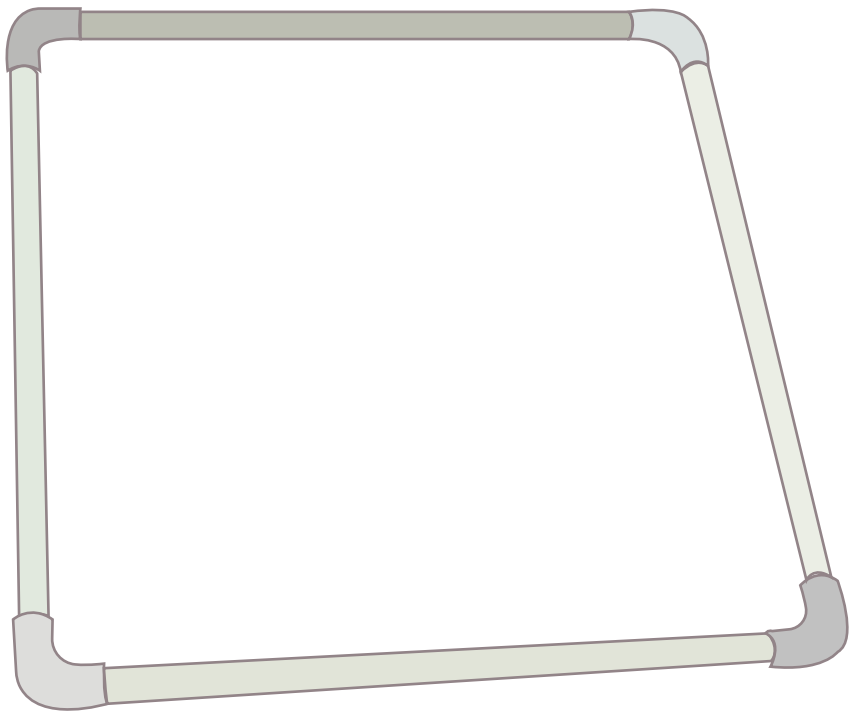
Area surveyed:
480 m^2.

Mean recruite hard coral cover:
13.67%

Site with the highest recruite cover:
Site X

Site with the lowest Recruite cover:
Baie Ternay North West

Most abundant genus:
Favites



Coral recruitment for 2019 increased an incredible 75% from 2018! Higher recruitment numbers gives a higher potential for recovery and resilience to the reef, hopefully giving it a fighting chance.

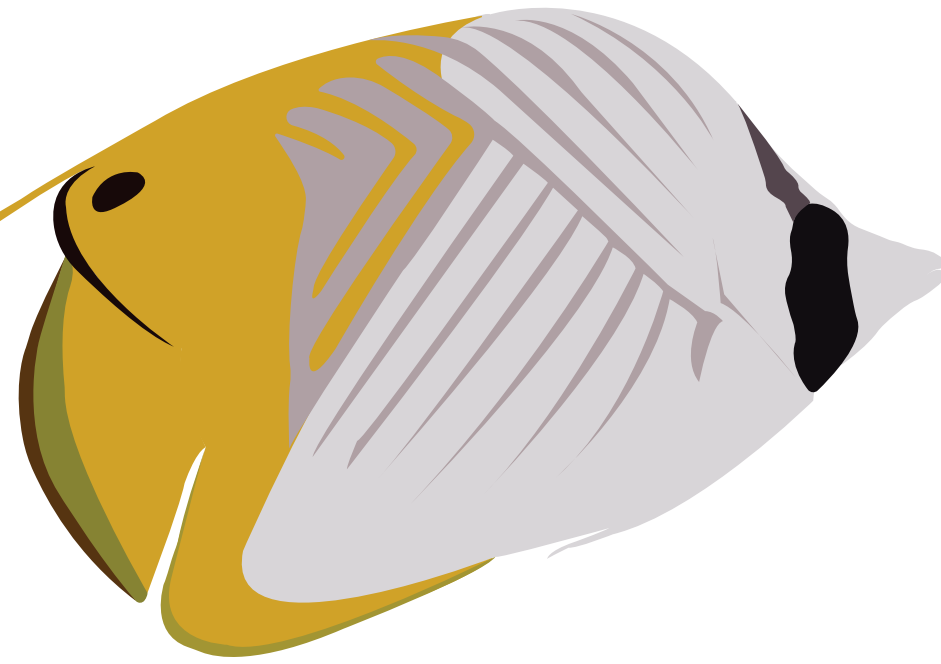
This year *Favites*, not *Porities* as other years, was the dominant recruit. This genus is known for tolerating higher temperatures. This is a very important feature as bleaching events do not affect it as much as other corals like *Acropora*.

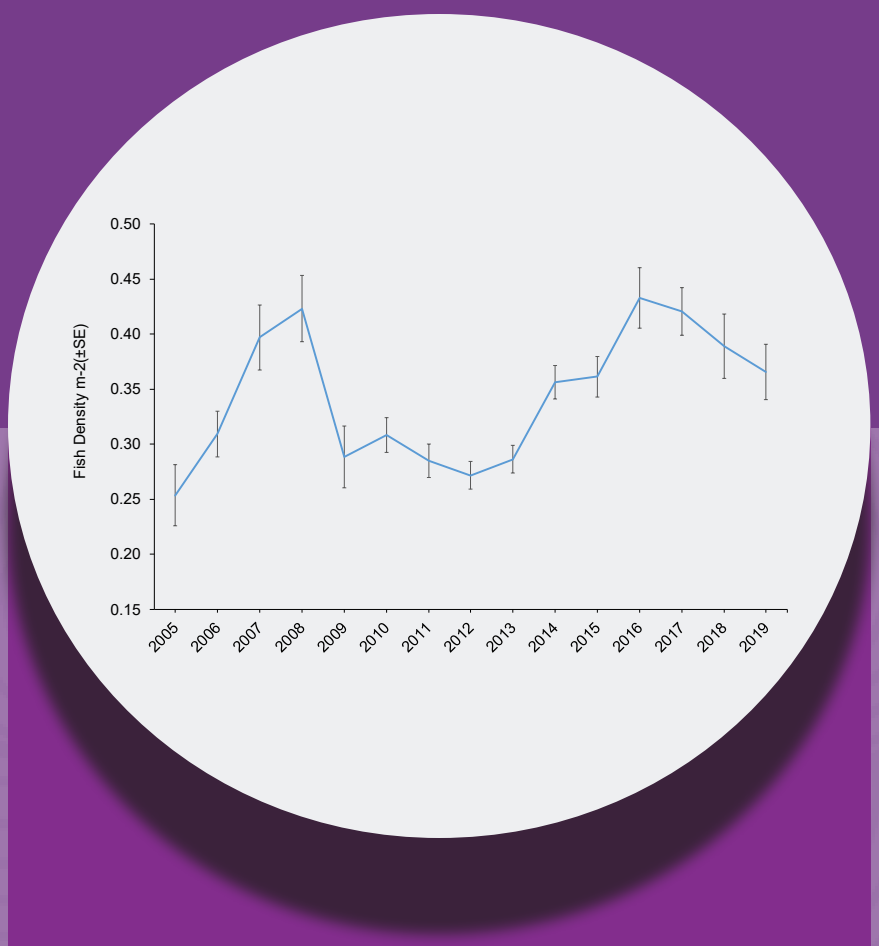
As before, deep surveys had higher densities of coral recruits over the shallow surveys. This is because deeper areas have better conditions for corals to survive, like less sediment and better nutrient availability.

Coral reefs depend a lot on these small corals. It is important to keep an eye on them because they can be a good indicator of how fast our reef is recovering. We hope this positive trend continues for next year.

FISH

SPC and Belts





Number of surveys completed:
468 surveys

Area surveyed:
146,250 m^2.

Mean fish density:
0.366 individuals per m^2

Site with the highest fish density:
Therese North East

Site with the lowest fish density:
Site X

Our fish populations have been going down since the 2016 bleaching event. Mean fish density has now dropped by 15.5% compared to fish stocks prior to 2016. Usually fish numbers are linked with the live coral cover and after the loss of our corals in the past years, it's understandable that our fish numbers are going down too.

Our data also found that commercial fish density was affected more severely than the reef fish density. For commercial fish species, not only is their habitat destroyed by a bleaching event, but in many cases their food source is indirectly reduced when the smaller fish upon which they prey are reduce too.

One of the biggest factors affecting changes to fish densities after a severe disturbance event is the protection status of the reef, with protected reefs often showing earlier signs of recovery than unprotected sites. This year both protected and unprotected areas had a reduction in numbers. Still, protected sites have higher fish density than unprotected sites.

Fish numbers are still going down, and with the reef continually being affected by severe disturbance events, fish families are not getting enough time to recover. It is crucial to continue monitoring the impacts on the reef. There is pressure for more management strategies to be created, underlining how crucial protection is to retain healthy fish stocks.

INVERTS

Lit and Belt

Number of Invert Lits completed:
84 Lits

Distance surveyed:
840 m.

Number of Invert belts done:
80 Belts

Area survey:
20,000 m^2

Dominant invert:
Blaclk spine urchin

Short spine urchins, Long spine urchins, pencil urchins and flower urchins all increase in number from 2018. This can be due to the fact that they are algae grazers, and algae cover had also increased since 2018 by 35%, providing the urchins with more food. Flower urchin numbers increased by 500% which could be a lag effect from the 2016 bleaching, with juvenile flower urchins only growing to maturity by 2019. We believe more juveniles settled in 2016 because coral rubble provides flower urchins with food and protection, this could potentially lead to an ongoing trend in the next few years when 2017, 2018 and 2019's juveniles grow to maturity.

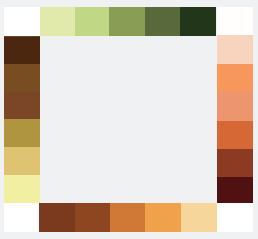
Some marine inverts declined such as Mathaes urchins, crabs, lobsters, shrimp and Shells. These animals have been found to be affected by small temperature increases of 2-3 degrees, meaning that the rising temperatures are probably a cause for this back in March-May where temperatures reached 31 degrees. They are also all effected by ocean acidification as they all use calcium carbonate for their skeleton or shells.

Sea cucumbers reached their highest recorded densities since recording began in 2005. There was a record number of Stichopus sea cucumbers recorded this year, with 255 counted on a single belt at Conception North Point! This was a large contribution to the overall cucumber numbers, with most species numbers actually in decline. One theory is that sea cucumbers could have been in atrophy (hibernation) in water temperatures of 28 degrees and higher which was displayed over a large portion of the year, which could have affected the spawning season in 2019.

These increases in numbers show a good sign for coral reef recovery due to their impact on coral reef competitors, keeping things such as algae off of areas that coral recruits can attach to. However it has also shown the negative effect of water temperatures on more marine species than just coral.

ADITIONAL PROJECTS

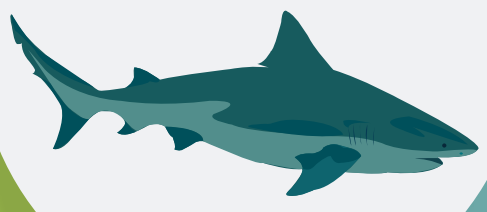
CORALWATCH



We recorded 4,134 corals for 2019! If you are intrested to see our contribution with Queensland University go to:

https://coralwatch.org/

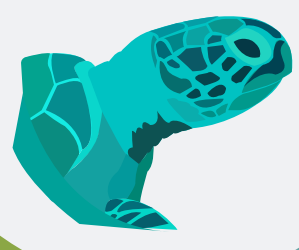
MEGAFAUNA



We recorded 2,069 different species of sharks, rays, turtles, marine mammals, big fish and more. If you want to check our online database go to:

http://seamap.env.duke.edu/

TURTLE PROJECT



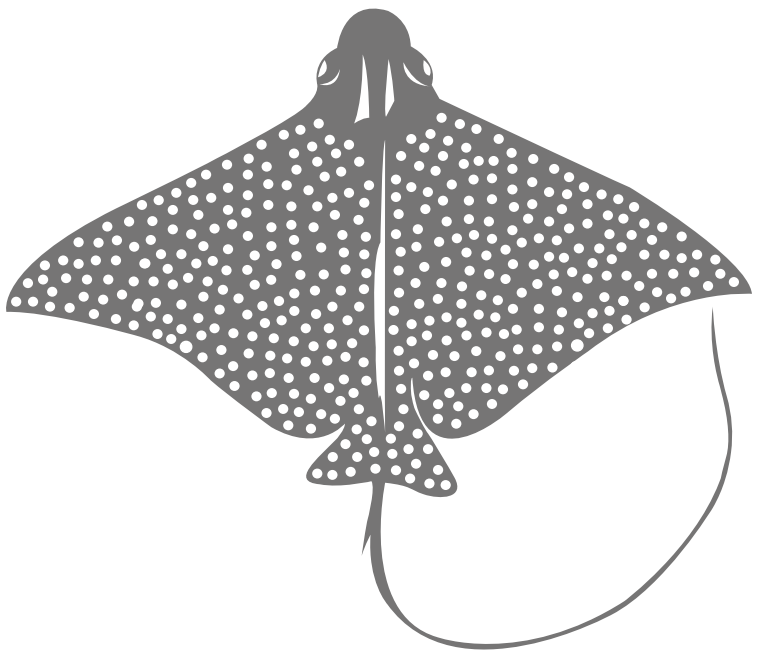
We photograph 68 turtles, 18 of them are identified and unique and 50 are unidentified. If you want to see our submissions go to:

https://iot.wildbook.org/

DAD DIVES

For 2019 we collected 33.2 kg for Corsaire and 57.5 kg for Site X. If you want to check our surveys go to:

https://www.projectaware.org/diver/gvicapternay



GVI-CT-2020

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