

## Introduction

- It was previously believed that corals were immortal.
- Recent studies show that many corals have finite lifespans (show characteristics of aging).
- The findings of these studies focused on individual polyps (individual animals) within a coral colony (Figure 2).
- This research identified growth rates and patterns in the coral polyps using time-lapse photography, electron microscopy and x-rays of coral skeletons.

## Key Terms

- Polyp – a polyp refers to an individual animal within a coral colony
- Coral colony – A coral colony is formed by many individual polyps which join together by producing a hard exoskeleton

## Methods

- X-rays of preserved coral skeletons were used to observe the growth pattern of polyps within a colony. This is done by tracing the lines in the skeleton x-ray.
- Time-lapse photography was also used to measure the growth rate of 3 dominant polyps (apical polyps) in a colony
- The rate of growth was calculated by setting up a camera to focus at a fixed distance from the coral and taking a photograph of each polyp every 12 hours
- Electron microscopy was used to identify where chloroplasts were concentrated within the apical polyps
- A high concentration of chloroplasts suggests a high growth rate in that region

## Conclusions

- Growth patterns vary between coral species. Some show unified growth (equal growth amongst all individual polyps) while others show more growth in some polyps than others
- Polyps within colonies are not immortal even if the colony shows no signs of ageing
- More research is required to identify the growth rate of the dominant polyps within a colony

## Findings

- The coral skeleton x-rays showed that growth patterns vary between different species of coral.
- All 3 coral polyps showed no signs of growth over a 96 hour period (Figure 1).
- Due to time constraints no results were gathered from electron microscopy. The preparation of the coral took more time than expected.

## What's next?

- This research shows that different species have very different growth patterns and that there is not a universal model for coral growth.
- Further analysis of preserved coral skeletons would help identify the patterns of growth and death in individual species

## Acknowledgements

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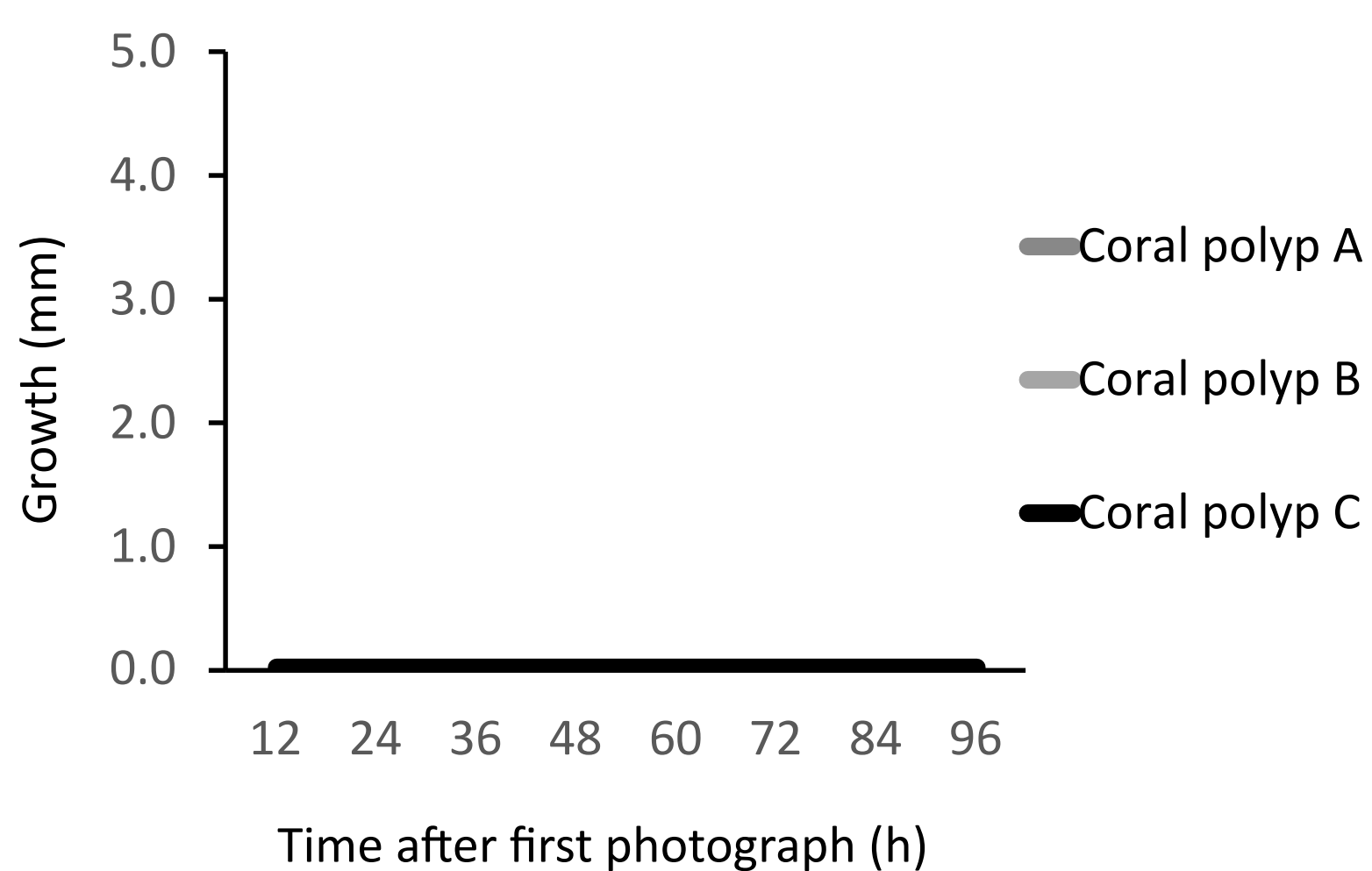


Figure 1. The length of growth (mm) of coral polyps A, B, C when measured at 12 hour intervals. All three polyps did not grow over the course of 96 hours.

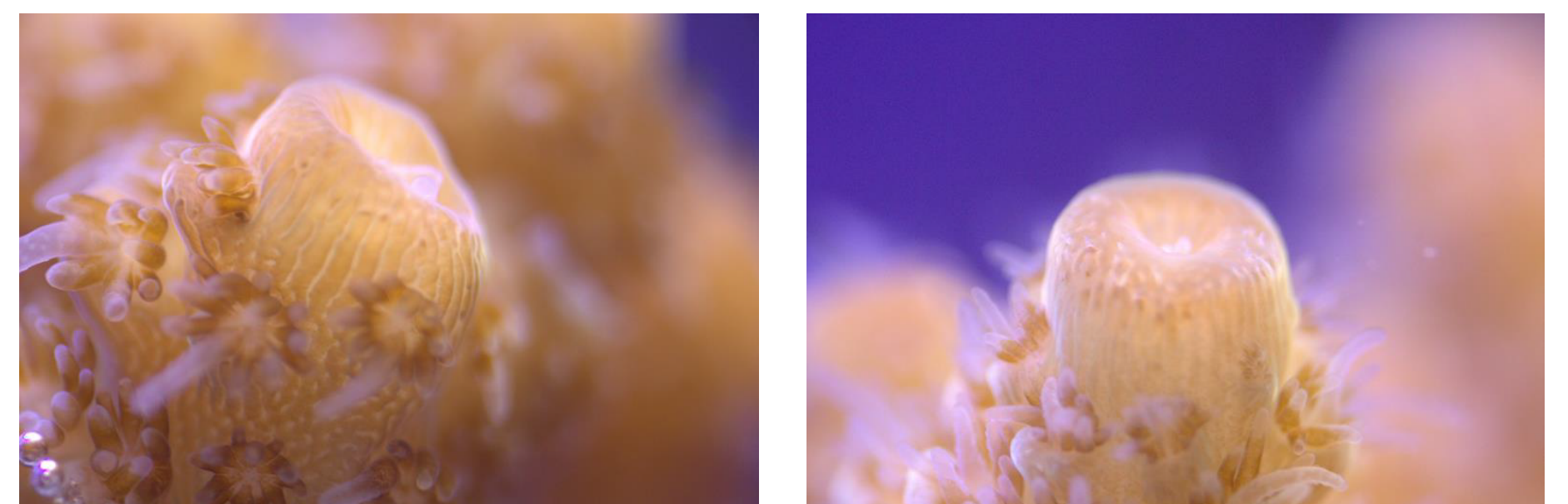


Figure 2. Photographs of individual coral polyps (Individual animals) feeding on sediment in the water (Frazer, 2017)

