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2000

PHILIPPINES

Summer 2000 field studies report

Introduction:

We were based in Taytay Bay in Northeast Palawan, one of the least explored areas of the Philippines, living at the Cagdanao Island Field Station. From this remote tropical island we were within reach of the numerous coral reefs that fringed the hundreds of islands dotted throughout Taytay Bay. Our main objectives for this project were as follows:

- 1) To broaden our knowledge, understanding and practical skills in our chosen degree subject.
- 2) To use our scientific ability in making a positive contribution to help preserve some of the worlds most threatened marine species.
- 3) To investigate adaptations of marine life relating to the varying niches in which they are found.
- 4) To have the opportunity to participate in an exhilarating sport in such awesome surroundings.

Methods:

Five weeks on Cagdanao with a great group of volunteers, staff and the hugely important team of locals, was a life changing experience, from the very first thrill at the site of the island (seriously gorgeous) to the different thrill at first site of the accommodation (seriously basic). Science week, our introduction to marine life was extremely intense and concentrated. We had lectures, slide shows and practice points on fish coral and invertebrates from the highly trained Science Officers who were living on the island with us.

After several practice surveys, we were ready to enter the water, with our ten meter coral lines, science buoys and underwater slates to survey the reef surrounding the island, to collect data on marine life and general health of the reef. The slates were essential for recording what we actually saw and relating this back to species identification card. Our underwater cameras were of limited use to us, as they would not work below five meters. However we did manage to take a few pictures of the reef whilst snorkeling. It was not

predators. the 'safety-in-numbers' theory, and rapid, erratic movement to confuse potential may also include non-toxic fish mimicking toxic fish, schooling, i.e. making use of It is true to say that most marine animals possess effective means of defence. These bottom and, if trodden on, releases a toxin, which can be fatal.

The Pufferfish 'puffs' up into a grotesque shape in an attempt to deter any predators. The colourful 'Christmas-Tree Worms' retreat rapidly into their burrows at any hint of movement overhead. We had to watch out for the Stonefish, which lurks on the

We encountered varied defence mechanisms amongst animals and plants alike. Jellyfish and unfortunately a couple of people in our group felt the painful effects of *hydra* in the water column were being disturbed. We had to keep our eyes open for Everytime we entered the water we could feel tiny 'pin-pricks' as the microscopic the stinging tentacles.

We came across many different examples of how marine animals use camouflage to The brightly coloured Clownfish is another example. It lives in close symbiosis with an anemone, from which it rarely strays. It is difficult to see these fish amongst the numerous, colourful, continually moving tentacles.

are truly almost impossible to spot. with its surroundings. It is unbelievable how effective they are at 'disappearing' and able to change colour and shape as it moves over different parts of the reef to fit in their advantage. One of these is the remarkable Cuttlefish. It, like the octopus, is We came across many different examples of how marine animals use camouflage to

Every evening we sat down and discussed the data from each dive and managed to draw up the following results:

Results:

always possible for us to follow our proposed survey plan, as access to the location was not always feasible due to adverse weather conditions.

- Various reproductive methods are used throughout marine life. The majority of fish lay eggs, which take approximately one week to hatch into the larval stage. They can stay in this vulnerable stage for up to 2 years, after which they have formed into tiny fish, which establish themselves on the reef.

Some fish, such as the Triggerfish, do not lay eggs in the water-column but instead make a nest on the sea floor in which the female lays her eggs. These eggs are more likely to hatch successfully as the parent fish extensively guards them.

Another reproductive method is 'brooding' as seen in Seahorses. The female lays her eggs into the male's pouch, which are then internally fertilised and brooded by the male. Again this method provides an increased chance of survival as the parent provides additional protection.

Sharks and rays actually give birth to live offspring as opposed to laying eggs. This usually happens once in a 3-year cycle when approximately six young are born.

The only reproductive method we were lucky enough to see was hatching of baby turtles. A mother Hawksbill turtle had laid her eggs on our island and whilst we were there, hundreds of tiny turtles made their precarious journey to the sea. It was quite some sight to see by the light of the moon!
- As one would expect, generally as group size increases, the individual size of each fish in that group decreases. Small fish are generally vulnerable to predation and therefore tend to form large groups. Big fish can afford to be solitary as they have less risk of being preyed upon. A large fish needs more food, so hunting alone reduces the risk of competition.
- Some examples of the many feeding mechanisms we saw are as follows:

 - Opportunistic Stonefish hide in burrows on the sea-floor and lunge out to grab anything passing by – they are not after any specific prey, just whatever they can get their jaws onto!
 - Bumphead Parrotfish, being 'coralivores', actually eat the coral reefs themselves. Their defecation forms coral sand and they are very important for coastal maintenance.

- The Mark Scott Foundation

possible. We would like to give many thanks to:

Without help from the following organisations our whole trip would not have been

Acknowledgements:

time.

see such diverse and beautiful marine life has made this expedition truly a trip of a life diving, the ideal location, interacting with the local people and the unique opportunity to by no means a smooth-running trip, but definitely a more exciting one! All in all the boats, illness, dynamite fishing and even a totally unexpected pirate invasion resulted in Like every expedition, some things did not go according to plan. The weather, broken marine life, which are in an effect limitless.

species and had a first-hand chance to observe and investigate many adaptations of make a positive contribution to help preserve some of the world's most threatened marine understanding and practical skills in marine biology. We used our scientific ability to From our expedition we feel that we have definitely expanded our knowledge,

Conclusion:

the Lizardfish.

'walking' across the seafloor, or burrowing into it. Many have evolved limbs, such as swimming, such as fins; whilst benthic animals (on the seabed) had adaptations for Overall, we found that pelagic animals (in the water-column) had adaptations for

which are only open at night.

Nocturnal fish have to be adapted for night-vision. For this reason, fish such as Squirtreiffish, have extremely large eyes. Feeding at night allows these fish to exploit different feeding niches; for example nocturnal fish feed mostly on coral polyps

Expedition site to Taytay (boat)	Depart date
Taytay to Puerto Princesa (bus)	
Overnight in Puerto Princesa (hotel)	
Puerto Princesa to Manila (flight)	1 day after
Depart Manila (flight)	2 days after
Arrive U.K.	

Homebound travel

5 week stay on Caganao Island

Depart U.K. (flight)	3 days before
Arrive Manila. Overnight in hotel	2 days before
Manila to Puerto Princesa (flight)	1 day before
Overnight (hotel) in Puerto Princesa	
Puerto Princesa to Taytay (bus)	Expedition start date
Taytay to expedition site (boat)	

Outbound travel

Outline of our travel itinerary to the Philippines:

Appendices:

Other investigatory involvement is Coral Cay Conservation who not only taught us to dive, allowed us to gain access to such a remote location but also provided skilled science officers to teach us all about the coral reefs and species found there.

- The Weir Fund for Field Studies
- The James Rennie Bequest Fund
- The Vanderval Foundation

We approached many organisations for funding and were extremely lucky to obtain the funding we did. In total, we managed to raise £ 1,250 each to put towards our expedition. However, after purchasing the necessary dive equipment and other travel essentials, our whole trip actually cost approximately £ 2,500. The extra money therefore had to be made up by ourselves through part-time jobs, personal savings and family help. Fund raising is never easy, but it was truly worth it, as without the funds gained, our trip would have never been possible.







